GAS JOURNAL, NOV. 22, 1939

VOL. 228 91st YEAR No. 3992

Editorial Notes

Benzole Recovery

It is not surprising that lately there has been much discussion on the subject of benzole recovery. Mr. Rea, of Perth, brought the matter forward in his recent Paper to the North British Association, and a special general meeting of the Midland Association was held in Birmingham this month to discuss the proposition of installing benzole extraction plant in view of the national emergency. A report of the discussion which took place on that occasion will be found on later pages of to-day's "JOURNAL." Also in this issue are further comments on Mr. Rea's contribution, in which he set out a financial statement of the operation of the benzole recovery plant at Perth. Even with partial recovery he was able to show a good profit on the process. The Paper was prepared prior to the outbreak of war, but he stated that his policy in regard to benzole then, after his peace-time experience of recovery, was to extract the maximum quantity practicable. At the same time as recovering benzole Mr. Rea has, as a result, been able to supply gas containing only 7 grains of sulphur compounds per 100 cu.ft.—which, it will be agreed, is an excellent step.

It may be recalled that we made a very close analysis of the economics of benzole recovery towards the end of last year. It was published in the "JOURNAL" for December 14, and gave rise to a great deal of comment—for the most part favourable comment. We suggest that that analysis might profitably be referred to again by gas engineers at the present juncture—not as an incentive to recover benzole at the present time, for the Government has made quite clear its requirements in this regard, but as an encouragement from the financial point of view, and as a method of assessing costs. Since the outbreak of war the situation has changed. The prices of coal and of by-products have altered, but we cannot think that the position is fundamentally different, or that benzole recovery can prove a heavy burden for gas undertakings to shoulder. The cost of coal has advanced; so have the prices of gas and coke. The cost of petrol has started its upward curve, and the price which benzole can fetch will follow suit. It is, then, a matter of adjustment rather than fundamental change. In any case the nation needs benzole, and particularly toluole, and gas undertakings will undoubtedly respond. The important considerations which should exercise the minds of gas engineers now are the choice of the right type of plant and care in its efficient operation. In saying this we do not suggest that the economic aspect of recovery should not engage attention. Obviously it must; but decisions ought not to be delayed because of fear that there may be a few pounds loss on the process. Paper figures have often been proved very different in practice.

Moreover, we must look ahead, and we feel sure that gas undertakings cannot afford to continue to sell gas of a high sulphur content. Gas of low sulphur content, as we have for long emphasized, opens up a wider field of usage, prolongs the life and reduces the maintenance costs of appliances, and improves their appearance in use. Benzole recovery is linked up with sulphur removal, though the latter is not necessarily dependent on recovery. But why not, so to speak, kill two birds with one stone? Looking to the future, would it not be wise to install washers capable of dealing with the circulation of oil necessary for the reduction of sulphur? The ease with which sulphur can be reduced at no great works expense was amply demonstrated in the admirable Paper presented recently by Mr. Norman Hudson to the Manchester Association, comment on which was made in these columns last week.

Hire Purchase

To expect the Gas Industry to maintain 100% of its peace-time prosperity during the war would be to expect the impossible, but since the war started we have lost no opportunity of urging the pursuit of a "Business as Usual" policy throughout the Industry, a policy which, as we said last week, must not be confined to one branch to the exclusion of others. The analysis of the pros and cons of war-time hire-purchase arrangements for gas appliances published elsewhere in this issue prompts us to return to the subject and to ponder the question as to whether, collectively, the supply side of the Industry has recognized that the business of the appliance makers must be maintained on at least the same level as the

other branches. So long as gas is sold for domestic consumption appliances must be made available to consumers on the most convenient terms possible commensurate with the financial stability of the undertakings. That instalment buying can continue to be a feature of this country's domestic economy is proved by the business still being done by radio, cycle, and furniture dealers, and the Gas Industry cannot afford to jeopardize by an entire suspension of the hire-purchase system its own goodwill or the functions of the appliance makers which are essential to its whole progress.

Some undertakings that have discovered that it does not pay to grant "terms" to all and sundry without any test of their ability to meet their deferred obligations have made the crisis the excuse to take what seems to us to be an unnecessarily drastic step in deciding to drop the system entirely, but we believe that if they will treat the present crisis as an appropriate occasion to put such business on a more secure basis rather than seize it as a reason for putting up their shutters they will reap due reward and at the same time help to keep the wheels of industry moving. Leaders of all sections of the Industry are unanimous in their desire to "carry on," and with the outlook considerably better than it was in the apprehensive days that followed the outbreak of hostilities, when no one could see at all clearly what was likely to happen to the industrial world, there are good reasons why those undertakings that suspended their normal sales policies should reconsider the position with a view to the resumption of hire-purchase trading, with such modifications of conditions as local circumstances require. It must not be forgotten that under the revised rationing scheme at least as much gas may be consumed by any individual consumer as was used in the corresponding period of last year, and this implies that, apart from the restricted spending power of consumers in areas most severely affected by the war, there is a market for the same amount of apparatus as was sold in a normal year.

Unaccounted-For Gas

THE policy of Mr. Rea, as outlined in his North British Paper, of paying attention to the maintenance of meters in good working order is to be commended. The gas meter is apt to receive less attention than it should, and though it is difficult to estimate the actual quantity of gas lost due to defective meters it must be considerable, for which reason periodic examination at fairly frequent intervals is desirable. We expect a very great deal from the gas meter, and the remarkable service it gives is high tribute to the skill of the meter manufacturers. But it should be reasonably well cared for. A point to be watched is the passing of unregistered gas at very low rates of flow such as are common with many thermostatically controlled appliances. It was a point raised during the discussion on the Interim Report of the Sub-Committee on Unaccounted-for Gas at last year's Autumn Research Meeting of the Institution, and previously at the June meeting, when Mr. G. M. Gill explained that he had had a number of tests carried out which suggested that new meters usually measure small by-pass consumptions, but that a good proportion of meters which have been in use for some years will not do so. He quoted as example of possible loss a sink heater consuming 60 cu.ft. per hour, using when actually at work supplying hot water 10,500 cu.ft. a year. If the heater had a by-pass consuming $\frac{1}{4}$ cu.ft. per hour, the by-pass consumption would amount to 2,715 cu.ft.—and this, if not properly registered, would represent a substantial loss to the undertaking.

Correct registration of by-pass consumption is undoubtedly a matter to watch, though very many domestic installations include two or three thermostatically controlled appliances the by-pass consumption of which, in the aggregate, would be properly measured. Another important influence on the determination of the gas consumed is the overloading of meters beyond the capacities for which they are designed. Failures to register correctly at overloads cannot be seen in service, and losses due to this cause may be considerable.

Then there is leakage from mains and services, and this aspect of loss and the measures for its prevention formed the subject of a practical and useful Paper by Mr. C. B. Felton, discussed at a meeting of the Wales and Monmouthshire Association and reported in the "JOURNAL" for November 5. The Author's reply appeared in last week's issue. The gist of the Paper was the cost incurred by neglect of supervision of mainlaying operations, and we do think there is a tendency—we are thinking of the smaller works—for young engineers to be very keen on the works, but not quite so keen on their distribution system. Yet work devoted to keeping down the unaccounted-for gas figure gives an excellent financial return. Attention to reduction of unaccounted-for gas is well worth while; apart from other considerations, substantial improvements assist to delay capital expenditure on manufacturing plant.

Smokeless Heating—and Cost

WE are all for smokeless heating, by gas and by solid fuel. We think that the rational treatment of coal is by carbonization and that the burning of raw coal in the domestic hearth is exceedingly wasteful of the country's resources. We have no quarrel with the low temperature carbonization process, and on more than one occasion we have expressed admiration of the enthusiasm and business skill with which Colonel W. A. Bristow has guided the progress of Low Temperature Carbonisation, Ltd., through many difficulties.

We were somewhat astonished, however, by an advertisement issued by that company which appeared in the national Press last week relating to the solid smokeless fuel "Coalite." The advertisement was anent rationing. "Your fuel," ran the announcement, "is rationed by weight. 'Coalite' smokeless coal is half the weight of raw coal. The user obtains, therefore, twice as many fires for every ton of fuel." What was the implication of that statement? That the consumer of "Coalite" would by its use obtain twice as much heat as he would by burning raw coal? If that was not the implication we can hardly see the point of the advertisement, for surely it would not be considered desirable to call attention to the extra labour entailed in filling the grate more frequently with "Coalite" than would be necessary with coal.

We appreciate that every ton of "Coalite" used means the production of home-produced oil and petrol, and we know from experience that it makes a pleasant and efficient fire—a fire thermally more efficient than coal. A ton of "Coalite" does give more effective heat than a ton of coal, and it has the great advantage of being smokeless. But any suggestion that a ton of "Coalite" contains twice as much heat as an equal weight of coal is absurd, and that one can obtain with "Coalite" twice as many fires for every ton of fuel is, in itself, not an argument in its favour. It may also be pertinent to point out that the overall radiant efficiency of gas coke burned in a coke grate is greater than that of low temperature coke, and that gas coke is cheaper in use than coal and much cheaper than low-temperature coke. Moreover, the use of gas coke in place of raw coal assists the country in the production of many vital raw materials, including those for high explosives. No, that "twice as many fires for every ton of fuel" is a strange argument.

A Great Achievement

IN this week's issue of the "JOURNAL" we publish a brief account of the remarkable figures obtained on the installation of Woodall-Duckham continuous vertical retorts put to work at the Provan Works of the Glasgow Corporation Gas Department in 1921. When first erected this plant was claimed to be the largest single installation of continuous vertical retorts ever built, and as far as we know it still maintains this dis-

tinction. To this original honour the Provan plant has added a record of long life, astronomical outputs, and low running costs.

Briefly, the plant has already worked over 17 years and has manufactured over 78,000 million cu.ft. of gas, representing the carbonization of over 5½ million tons of coal. But the remarkable feature is that most of the original brickwork, steelwork, and ironwork are still in position and in use, as may be gathered from the fact that the money spent in running repairs to brickwork and castings amounts to only 1.27d. per ton of coal carbonized. The article emphasizes that this sum does not represent a full maintenance cost as it does not provide a sum for the eventual rebuilding of the plant—and even the best of plants must require replacement in time.

This performance, which may truly be termed a great achievement, must be a source of gratification to the builders of the plant and gives point to the line that a successfully designed plant does not happen by accident, rarely does it happen by inspiration, almost always by experience. It must also be a source of satisfaction to the Glasgow Corporation, who must feel that their original selection of the plant which has stood them in such good stead was well founded.

Transactions of the Institution

We congratulate The Institution of Gas Engineers on the publication last week of Vol. 88 of the Transactions, this volume covering the proceedings during 1938-39. During recent years much leeway had to be made up, but the Transactions are now right up to date. The present volume covers the Autumn Research Meeting of 1938 and the Annual General Meeting last June; and as for size, with its 1,594 pages it beats all records. It includes the Paper by Mr. J. Jamieson and Mr. W. J. Skilling on "The Deterioration of Coal on Storage," which was presented and discussed at a special general meeting on March 14 of this year; the Symposium on the Gas Industry Overseas, presented at the June meeting; Dr. E. F. Armstrong's Murdoch Centenary Lecture; and the first Arthur Duckham Research Fellowship Report by Dr. A. E. Haffner. It has been edited with the customary thoroughness, and the printing, paper, and general layout leave nothing to be desired.

Coke for Grass-Drying

Readers may have heard the wireless announcement a few nights ago to the effect that encouragement will be given to agriculturists to put down grass-drying plants with a view to making the country less reliant upon imported foodstuffs for cattle. At the moment something like two million tons of cattle food is imported annually, a proportion, at any rate, of which could easily be met by the greater adoption of grass-drying. As is well known, coke is a highly suitable fuel for plants of this kind; we have described in the columns of the "JOURNAL" a number of such installations, for which the London and Counties Coke Association have been largely responsible. We understand that the Association have the matter under consideration at the present time and have communicated the advantages of the system to the appropriate Government Department. It would be premature to say more at the moment, but the wireless announcement suggests that serious consideration is being given to the scheme. We may hope to hear further details in the near future, and in the meantime gas undertakings serving agricultural areas would do well to make themselves thoroughly *au fait* with all the aspects of the system.

Control of Toluene

As we go to press we have received an important notice, which will be found on a later page, from the Ministry of Supply concerning the control of toluene. The Minister has made an Order under which he takes control of all toluene, toluole, and all other coal tar spirits containing more than 2% of toluene. So much toluene is required for national purposes that supplies for ordinary industry will be reduced. It will be noted that low gravity benzole obtained from gas-works using continuous vertical retorts is included in the Order. We shall deal with the matter more fully in next week's "JOURNAL."

Personal

British Gas Light Appointments

The Directors of the British Gas Light Company have appointed Mr. A. L. HIGHAM, the Engineer and Manager of the Company's Norwich Undertaking, to succeed Mr. C. R. Armitage as Engineer and Manager at Hull, on his retirement on Nov. 30.

Mr. Higham commenced his career in the Gas Industry at the Company's Hull Station, and after spending ten years there was transferred to Gorleston, thence to King's Lynn as Engineer and Manager, and, in 1934, to Norwich, where he succeeded Mr. Armitage upon the latter's transfer to Hull.

The vacancy at Norwich is being filled by the appointment of Mr. R. A. WESTON, one of the Joint Assistant Engineers at Hull. Mr. Weston entered the Company's service at Norwich, subsequently being transferred to Hull, and thus returns, as does Mr. Higham, to take charge of the undertaking at which he received his early training with the Company.

* * *

The chief officials of Chesterfield Corporation held a dinner at the Portland Hotel, Chesterfield, on Nov. 14, in honour of Mr. HAROLD DAVIES, who recently retired from the post of Gas Engineer to the Corporation. Mr. C. Boldry, Engineer to the Chesterfield and Bolsover Water Board, who has been associated with Mr. Davies since his appointment 20 years ago, presided. Mr. Davies was the recipient of an inscribed silver dish, two silver sweet dishes, and a cut-glass tray.

* * *

A short-wave German broadcasting station on Nov. 11 announced that six British airmen are in a prison camp in Central Germany. One of the men mentioned was Aircraftman P. T. PACEY, son of Captain S. Oswald Pacey, Engineer, Manager, and Secretary of the East Retford Corporation Gas and Water Undertakings, who is himself now on active service.

* * *

Mr. FRANK WALTON MIDDLETON, son of Major Frank Middleton, Deputy Chairman and Managing Director of the Old Silkstone Collieries, Ltd., near Barnsley, has been elected to the Board of that Company.

Mr. DAVID MORTON, of Arbroath, has resigned from the Secretaryship of the North-Eastern District Commercial Section of the North British Association of Gas Managers, and has been succeeded in that position by Mr. DAVID L. DICKSON, of Newport, Fife.

* * *

Mr. ARTHUR CHAPLIN, Head Cashier at the Head Office of Messrs. Parkinson & Cowan, Ltd., who retired on Oct. 31 last, has been the recipient from the Directors and Staff of a presentation and an Illuminated Address conveying the best wishes of his friends and colleagues. As a very young man Mr. Chaplin joined W. & B. Cowan at their Smith Square, Westminster, Office in 1882. From 1896 to 1919 he was in charge of the Manchester Branch of W. & B. Cowan, but in the latter year he returned to the Head Office of the Company in London. During the last few months Mr. Chaplin has undergone a severe operation. Happily he is now making good progress towards recovery, but in view of war conditions and his present state of health he has decided to retire While sympathy will be extended to him in his disappointment at not attaining 60 years' service, he must be heartily congratulated on his record—of which he may well be proud—of over 57 years of continuous service with the firm.

* * *

Mr. W. A. SIMCO, who has been General Manager of the Bendigo Gas Company (Vic.) for 17 years, is relinquishing his post on account of ill-health. He has agreed, however, to act in an advisory capacity to the Company for a further three years. Mr. Simco has had 45 years' association with the Gas Industry in Britain and Australia, having received his training at the Stoke-on-Trent Works in England, and his connexion with that Undertaking lasted for 18 years. He began his colonial experience 27 years ago at Ararat (Vic.). Subsequently he was appointed to a position at the South Melbourne Works of the Metropolitan Gas Company, later joining the North Shore Gas Company, Sydney.

Mr. J. W. BATCHELOR, who has been Manager at Albury for some years, has been appointed Engineer and Manager of the Bendigo Company.

* * *

Councillor G. W. WHITWORTH has been appointed to the Chairmanship of the Appleby Gas and Water Committee, and Councillor J. HARGREAVES, Vice-Chairman.

Letter to the Editor

Gasholders and Safety

SIR,—I read with interest the excerpt in your Nov. 15 issue, from the "JOURNAL" of Aug. 1, 1871, on the damage done to various gasholders on the bombardment of Paris by the Prussians at that time. It brought to mind the following passage from "Clegg on Coal Gas," 2nd Ed., 1853, which I think you will find interesting:

"In 1813 Mr. Clegg commenced the Gas-works at Peter Street, Westminster.

"After the works had been some time in operation, Sir Joseph Banks and several other members of the Royal Society were deputed to examine and report upon the gas apparatus. The deputation strongly recommended Government to oblige the Company to employ gasholders containing not more than 6,000 cu.ft. secured in strong buildings. As Sir Joseph Banks and some of the other members of the deputation were in the gasometer-house, conversing upon the danger of a leak in the gasholder if a light happened to be near, Mr. Clegg called a man, and desired him to bring a pickaxe and candle: he then struck a hole in the side of the vessel, and applied the light to the issuing gas, to the no small alarm of all present, most of whom quickly retreated: contrary to their expectation, no explosion resulted from this experiment. This practical proof, however, did not serve to convince them of their error, and the Chartered Gas Company was put to considerable expense in making small gasholders, surrounded by strong buildings.

"From the first introduction of gas-lighting the use of large gasholders was considered as highly dangerous. After Stonyhurst had been lighted (where the capacity of the gasholder was 1,000 cu.ft.), Mr. Wright, the Superior of the College, complimented Mr. Clegg upon his success in lighting the establishment with gas, but suggested as an improvement the alteration of the size of the gasholders. He thought that one of 1,000 cu.ft. was too unwieldy, and advised that two should be erected to contain 500 cu.ft. each. Telescopic gasholders were invented twenty years before they were brought into use; and gasholders without a house to protect them from the weather were thought absurd: those erected by Mr. Clegg at Chester and Birmingham were much disapproved of on account of their being exposed, and the Chartered Company for years pursued the plan of erecting buildings over them."

Yours, &c.,

Sidmouth Gas Department, H. G. BURGESS.
Nov. 16, 1939.

Courses in Gas Engineering (Manufacture) and Supply

It is understood that the following Courses of The Institution of Gas Engineers in Gas Engineering (Manufacture) and/or (Supply) are or will be available in Greater London:

East Ham Technical College.—If there is sufficient demand from students, approved Courses in Ordinary Grade Gas Engineering (Manufacture) and (Supply) and in Gas Supply will reopen in January, 1940.

Regent Street Polytechnic.—The Course in Higher Grade Gas Engineering (Manufacture) began on Nov. 20. The Course in Ordinary Grade Gas Engineering (Manufacture) will reopen if there is sufficient demand.

Sir John Cass Technical Institute.—If there is sufficient demand from students, approved Courses in Ordinary and Higher Grade Gas Engineering (Manufacture) will reopen in January, 1940.

South East London Technical Institute.—If there is sufficient demand from students, approved Courses in Ordinary and Higher Grade Gas Engineering (Supply) and Ordinary Grade Gas Engineering (Manufacture) will open in January, 1940.

Any students studying for the Examinations in Gas Engineering (Manufacture) or (Supply) who are still in doubt regarding the continuation of their studies under present conditions should communicate with the Secretary of The Institution of Gas Engineers, 1, Grosvenor Place, London, S.W. 1.

Forthcoming Engagements

Nov.

25.—London and Southern Junior Association.—Meeting at Gas Industry House, 3 p.m.

Dec.

7.—S.B.G.I.—Meeting of Emergency Committee, Banbury, 2 p.m.

8.—I.G.E.—Joint Committee on Complete Gasification Under Pressure, Gas Industry House, 2.30 p.m.

12.—B.G.F.—Fifth Annual General Meeting, Gas Industry House, House, 10.30 a.m.

12.—N.G.C.—Central Executive Board, Gas Industry House, 11 a.m.

Gas Fitting

A Complete Manual of Modern Practice

Ever since Mr. R. N. Le Fevre began his series of monthly articles, entitled "Modern Gas Fitting," in the "GAS SALESMAN," it was clear that one day he would have to give the Gas Industry the benefit of a complete work on the subject. The popularity of these articles was immediate. We reprinted them some dozen at a time in sixpenny brochures which ran to No. X of the series, and over one hundred thousand copies have been sold to date.

At the same time we have realized for some years that one of the Industry's great needs was a comprehensive work, containing authentic information on practical lines, duly arranged and classified mainly for the purposes of the many young men who train annually for the responsibilities of the gas fitter—and at a price within their reach.

Mr. Le Fevre's experience as a teacher of the subject, and his position at Watson House and as City and Guilds Examiner, obviously ranked as outstanding qualifications for the authorship of such a book—fully confirmed by the amazing demand for the brochures to which we have already referred. Consequently, under considerable pressure in order to have the book ready for the autumn classes, his "Manual of Practical Gas Fitting," was in an advanced state of preparation at the outbreak of hostilities.

Mainly with the young student classes in mind and anticipating a very big demand, we had planned to publish at 7s. 6d., at which price this complete guide to gas fitting, with its 462 pages and no fewer than 316 illustrations, constituted undoubtedly the finest value in text books which had ever been offered to the Gas Industry. Though this price was based upon pre-war production costs, we have decided not to increase it, realizing that the partial cessation of training facilities due to the war renders even more necessary a complete manual of modern practical gas fitting, and that the average student gas fitter will certainly not be any better off financially than he was before. We have every confidence that the Industry will appreciate this service, and that gas undertakings will find it to their advantage to buy as generously as possible for their fitters—present and future. It cannot be too strongly emphasized that Mr. Le Fevre's book, though written primarily with student classes in mind, will be of equal value to the experienced man.

The information given is, of course, authentic and right up to the minute, and the book constitutes a complete tutor for all the practical gas fitting examinations. Whether or not examinations are taken, an excellent guide to the budding, or even qualified, fitter is contained in past practical examination questions with tips as to how the work should be done. Each section of the book is followed by full maintenance service instructions, and the practical value of the 316 clear line diagrams alone is quite outstanding.

Students in Gas Supply Courses who are often unable to obtain the necessary practical experience in fitting will find all they want between the covers of the "Manual of Practical Gas Fitting."

"Manual of Practical Gas Fitting," R. N. Le Fevre, M.Inst. Gas E., Walter King, Ltd., 51, High Street, Esher, Surrey, 7s. 6d. net, postage 6d. £4 (carriage paid) for 12 copies to Gas Undertakings and Teachers.

Institute of Fuel

London Meetings

The following meetings of the Institute of Fuel have been arranged:

Thursday, Nov. 30.—At the Apartments of the Geological Society of London, Burlington House, Piccadilly, W. 1, at 2.15 p.m., a Paper will be presented by Mr. J. W. Reber entitled "A Simplified Method for Estimating the Thermal Efficiency of Steam Boilers," and will be followed by a discussion. Members of The Institution of Gas Engineers will be welcome.

Friday, Dec. 15.—At the Apartments of the Geological Society of London, Burlington House, Piccadilly, W. 1, at 2.15 p.m., a Paper will be presented by Mr. J. Ivon Graham and Dr. D. G. Skinner entitled "Improvement in Calorific Value of Town Gas or Coke Oven Gas with Special Reference to Utilization as a Fuel for Motor Vehicles," and will be followed by a discussion.

Advance copies of the foregoing Papers can be obtained on application to the Secretary, Institute of Fuel, 30, Bramham Gardens, London, S.W. 5.

Gas for Motor Vehicles

An invitation has been received from the Institution of Automobile Engineers to all Members of the Institute of Fuel and of The Institution of Gas Engineers to attend a meeting on Dec. 12, at the Institution of Electrical Engineers, Victoria Embankment, W.C. 2, at 6 p.m., when Dr. J. S. Clarke, of the City of Birmingham Gas Department, will read a Paper entitled "The Use of Gas as a Fuel for Motor Vehicles."

Members of The Institution of Gas Engineers may obtain tickets of admission from the Secretary of the Institution, 1, Grosvenor Place, S.W.1.

News of the Week

Negotiations for the Sale of the Richmond (Yorks) Corporation Gas Undertaking to the United Kingdom Gas Corporation have been deferred on account of the war.

The Troon Town Council has agreed to increase the price of gas by 4d. per 1,000 cu.ft. as from the November survey. It was also agreed that the contribution to the retort repair revenue fund be at the rate of 1s. per ton of coal carbonized in place of 9d.

With Regard to the Alleged Danger to the town should enemy bombers score a hit on the gas-works, Mr. J. A. Derbyshire, Manager of the Gainsborough Urban District Council Gas Department, has issued a statement, based on official investigations, assuring the residents of the town that the possibility of an explosion is extremely remote.

Benzole and Toluole Plant, estimated to cost £3,167, is to be laid down by the Nelson Town Council at the gas-works at Brierfield. Borrowing powers for the cost of the plant are being sought. Alderman Robinson (Chairman of the Gas Committee) observes that there is a prospect of the plant making a profit.

Owing to the Increased Consumption of gas at the Ringway Airport, in consequence of the construction of new buildings, the Manchester Gas Department are to remove the existing meter and substitute three large meters which will be used exclusively for Airport consumption. The City Architect has recommended that they should be housed in a special meter house, reinforced to provide protection against blast, splinter, and incendiary bombs.

One of the Ships sunk by German mines or enemy action during the week-end is reported to be the Gas Light and Coke Company's 1,267-ton collier "Torchbearer." Thirteen survivors of the crew of 17 have been landed, it is stated, four of them seriously injured. The remaining four are missing. The "Torchbearer" was a familiar sight in the Thames, bringing coal from the north-east coast to the Company's Gas-Works.

It was Reported to the annual meeting of the Leicester Gas Committee that the Vice-Chairman, Coun. F. E. Oliver, is now serving with H.M. Forces. Alderman E. Grimsley was re-elected Chairman, and Coun. S. Perry was elected temporary Vice-Chairman. He will vacate the position in the event of Mr. Oliver's return during the present year. The increase in the price of coal was mentioned and a report upon the effect of this rise is to be obtained from the Engineer. A special meeting may be convened to discuss the position and a possible rise in the price of gas.

A Gas Supply from the South Hetton Colliery Co. for the Hartlepool Gas and Water Company came into operation on Nov. 11. The Company agreed to take a gas supply from the colliery a year ago and the main nine miles long from the colliery plant to the Hartlepool works has just been completed. At present the Gas Company is taking about one-third of its supply from this source, but in time it is expected that the entire needs of the undertaking will be met, so that the works plant will be closed down.

Sanction to Apply for a Loan of £150,000 was given to the Nottingham Gas Committee at a meeting of the City Council last week.

The Price of Gas at Newmilns is to be increased by 10d. per 1,000 cu.ft. as from the last meter reading, while the price of coke is to be advanced from 25s. to 30s. per ton.

In Spite of the Increase in the pithead price of coal, the Lincoln City Council have decided not to make any increase in the price of gas to the consumer at the moment.

The Gas Committee of the Glasgow Corporation on Nov. 14 recommended acceptance of an offer by Gas Chambers and Coke Ovens, Ltd., amounting to £271,961 for the reconstruction of vertical retorts at Provan Gas-Works. The Corporation have continued for further consideration this recommendation by the Gas Committee.

War-Time Cookery Demonstrations held last week at the Gas Showrooms, Burnley, were well attended, and in every way successful. Miss Eccles, of Cannon Iron Foundries, imparted practical information regarding suitable war-time dishes, and the Officials of the Burnley Gas Department deserve congratulations for the excellent arrangements made.

By 4 Votes to 3 the Carnoustie Town Council, sitting in committee, agreed to make the price of gas 4s. 3d. per 1,000 cu.ft. for both ordinary and slot meters, or 1s. per therm. The new charge represents an increase of 6d. per 1,000 cu.ft. for ordinary meters and 5d. for slot meters. It took effect from the meter reading on Nov. 16.

An Increase of 3d. per 1,000 Cu.Ft. in the price of gas has been agreed to by the Dunfermline Gas Committee—the alteration to take effect at once. The Committee were given powers to take steps to meet an estimated deficit of £4,135 in the revised estimate for the period from Sept. 1, 1939, to May 15, 1940. The estimated deficit is due to the discontinuance of street lighting and other causes.

After Fully Considering the effect upon street lighting of the blackout regulations, the Wellingborough Urban Council have decided to extend contracts with local gas undertakings by three years from the date of expiration, 1941, or from the end of the war, whichever is the later. The gas undertakings have agreed to forego any claim in respect of the cessation of lighting, and they will continue to maintain unused lamps free of charge.

A Reduction in the Price of Gas next year at Gainsborough was foreshadowed by the Chairman of the Gas Committee last week. He explained that the original loans on the Gas Undertaking would be completely paid off next year; but as an item of "pressing necessity" the Undertaking has decided to ask for a loan of £3,546 for the purpose of erecting two further retorts, which would increase the capacity of the gas-making plant by one-third. Subject to Ministry consent, the Committee propose to accept the tender of the Woodall-Duckham Company for the new retorts.

Institution of Gas Engineers

Research Communications

Owing to the present hostilities, the Eleventh Autumn Research Meeting of The Institution of Gas Engineers, which was to have been held in London on Nov. 21 and 22, has been postponed indefinitely.

The following Communications, which were to have been presented and discussed, have been published by the Institution and are now available to members upon application. A written Discussion of these Communications is invited and will be published.

5th Report of the Research Executive Commitee; 1938-39. (*Communication* No. 216.)

44th Report of the Joint Research Committee of the Institution and Leeds University. Combustion Characteristics of Town Gas.—Part IV. The Aeration Test Burner (Model B). (*Communication No.* 217.)

30th Report of the Refractory Materials Joint Committee. (*Communication No.* 218.)

16th Report of the Gas Education Committee; 1938-39. (*Communication No.* 219.)

Institution Gas Research Fellowship Interim Report; 1938-39. The Inflammable Ranges of Ethylene-Air Mixtures at Atmospheric and Reduced Pressures and the Influence of Small Amounts of Nitrogen Peroxide thereon, by J. S. Forsyth, B.Sc. (Institution Gas Research Fellow) and D. T. A. Townend, D.Sc., Ph.D., D.I.C. (Livesey Professor). (*Communication No.* 220.)

Some Recent Views on Factors Affecting Flame Velocity, by D. T. A. Townend, D.Sc., Ph.D., D.I.C. and M. Maccormac, Ph.D. (*Communication No.* 221.)

The Influence of Pressure upon the Water-Gas and other Equilibria, by G. Sartori and D. M. Newitt, M.C., D.Sc. (*Communication No.* 222.)

Some Observations on the Combustion Characteristics of Town Gas and its Constituents, by G. H. Fuidge, B.Sc., W. O. Murch, M.Sc., A.I.C. and B. Pleasance. (*Communication No.* 223.)

Corrosion by the Products of Combustion of Town Gas under Conditions of Condensation and Re-evaporation, by J. W. Wood, M.Sc., and F. Taylor. (*Communication No.* 224.)

National Gas Council

Central Executive Board Meeting

A meeting of the Central Executive Board of the National Gas Council was held at Gas Industry House, on Tuesday, Nov. 14. The Chair was taken by the Vice-Chairman, Mr. FRANK JONES, pending the arrival of the President, Sir David Milne-Watson, Bart., LL.D., D.L.

Coal and Coke

The Coal Prices (Inland Supply) Order, 1939, was reported.

Foreign Matter in Wagons Conveying Coal.—A resolution from a Commercial Section was considered drawing attention to the fact that certain collieries had asked to be relieved from responsibility for damage caused by foreign matter left in wagons conveying coal, owing to the difficulty experienced with lighting restrictions and abnormal working conditions now obtaining. The Board decided on the advice which should be given to gas undertakings in dealing with matters of this nature.

A letter reporting a Joint Meeting of the Management Committee of the Manchester District Executive Board and the Central Committee of the Lancashire and District Coke Association, held on Nov. 6, together with a resolution from a Commercial Section, dealing with the advance in the price of coal and the effect on the selling price of coke, was reported, and the action to be taken was decided upon.

Private Railway Wagons Pooling Scheme.—It was reported that the Government had set up a Committee to determine the amount of compensation payable to the owners of private wagons but that no decision had yet been reached by the Committee. It was pointed out that in the case of certain gas undertakings, their trucks could have been used more economically and expeditiously if they had not been placed in the pool, and that it was thought that it would be in the best interests of the nation if such trucks were again placed at the disposal of undertakings. A resolution from a Commercial Section was submitted with regard to the payments for such wagons, and it was pointed out that the sums referred to only represented payment on account of compensation and that the full amount would be settled by a Government Committee. The officers were directed by the Board as to the course which should be adopted in dealing with this matter on behalf of the Gas Industry.

Fuel and Lighting Order

The decision of the Secretary for Mines to increase the permissible consumption of coal, coke, gas and electricity from 75% to 100% of last year's consumption was considered.

A strong protest was lodged with regard to the increases which gas undertakings were asked to pay in the price of gas oil.

Alternative Fuels for Motor Transport

Reference was made to statements in the House of Commons and in the House of Lords on Nov. 8, with regard to the fact that gas used for motor transport will be neither rationed nor taxed and, further, that the Government was prepared to make some concession in regard to the method of determining unladen weight of gas-propelled vehicles.

It was decided that the next meeting should be held on Tuesday, Dec. 12, at 11 a.m., following the Fifth Annual General Meeting of The British Gas Federation called that day at 10.30 a.m.

Scrap Iron and Steel Control

A new Order (Control of Iron and Steel (No. 5) (Scrap) Order, 1939) for the control of scrap iron and steel superseded on November 17 the existing (No. 3) Order. This fixes, as before, maximum prices for the various grades of scrap, delivered consumer's works. Prices have been increased or reduced in certain cases to bring values for delivery in the various districts into correct relationship under existing conditions, but there has been no general change.

Gas and Fuel Economy

In an announcement which appeared recently in the local Press, the Hastings and St. Leonards Gas Company emphasized the fact that although the permissible ration is now the same quantity as for the corresponding quarters of last year, the need for economy of fuel is still very important.

If all suitable coal was carbonized as in gas-works, the statement went on, this from the national point of view would be the most economical and efficient use, saving coal and providing the essential by-products. Gas, it was pointed out, is most readily controlled by tap or thermostat and when used carefully in modern appliances is economical, and such use should assist compliance with the terms of the Fuel and Lighting Order.

A Great Achievement

Woodall-Duckham Continuous Verticals in Glasgow

In November, 1921, the first two benches of Woodall-Duckham continuous vertical retorts built at Provan Gas-Works, Glasgow, went into operation. These two benches formed a part of the largest single installation of continuous vertical retorts ever built. The whole installation comprises eight benches each of 24 retorts giving a total rated gasmaking capacity of 17 million cu.ft. of gas per day.

The remaining six benches were progressively put to work until the whole plant was in operation by September, 1922. Thus the average life of the whole installation is some 17¼ years, during which time no major rebuilding has been necessary.

The large size of the plant coupled with its long life has resulted in the accumulation of some very remarkable figures which probably stand as world records. During its 17 years' life the plant has already carbonized over 5½ million tons of coal and has made over 78,000 million cu.ft. of gas. Most of the original brickwork, steelwork, and ironwork are still in position and in use, as may be judged by the fact that the money spent in running repairs to brickwork and castings only amounts to 1.27d. per ton of coal carbonized.

This does not, of course, cover the full maintenance cost of the plant, as even the best of plants must require replacement in time, but nevertheless, the figure is a remarkable one.

Throughout its life the plant has given consistently high output and good yields. It has shown that, if circumstances required, it could easily exceed its guaranteed daily capacity and it has attained an output of as much as 20 million cu.ft. of gas per day or 3 million cu.ft. in excess of its rated capacity.

The retorts are designed on the downwardly-heated principle and are constructed of Scottish fireclay. They are heated by means of step-grate producers, six such producers being installed to each bench, three at each end of the bench. The producers are so arranged that gas may be taken from any producer to the heating flues of any retort. Each bench is provided with its own chimney and with a waste-heat boiler, in which the surplus heat in the waste-heating gases leaving the settings is utilized for the generation of steam for the operation of the plant.

The benches are arranged in four rows, each consisting of two benches end to end. Over each bench is a range of overhead coal storage hoppers affording storage capacity for 48 hours' supply to the retorts, and coke for the producers is stored in an extension of the overhead coal storage hoppers. A gravity bucket conveyor is arranged longitudinally above the storage hoppers of each pair of benches, with a descending loop outside each end of the retort house. These conveyors take delivery of coal and coke for the use of the plant and elevate it to the overhead hoppers.

Stretford Price Increase

Notification by the Stretford and District Gas Board of an increase in the price of gas has been published in the local Press and distributed to consumers. The notice gives details of how the increase affects ordinary and prepayment consumers as well as those on the two-part tariff. Large industrial consumers will not be affected in the same way as domestic consumers as the majority of them have the Coal Clause incorporated in their contracts, and any increase in the cost of coal automatically increases their price of gas.

The notice points out that in order to meet the increased cost of manufacture and distribution the price of gas to all consumers (except commercial and industrial consumers on monthly accounts) through ordinary and automatic meters within the Board's area of supply will be increased by 1d. per therm after the reading of the meters for the fourth quarter of 1939. In respect of monthly accounts the increased price will operate as from Nov. 1, and the published price of gas will be 11¼d. per therm. The two-part tariff rental charge will remain at 10s. per quarter, and all gas will be charged at 5¼d. per therm.

Charges for supply by ordinary meter will continue to be subject to a discount of ¼d. per therm of gas consumed for payment within 28 days from delivery of the account.

The Board, states the notice, has been reluctantly compelled to increase the price of gas owing to the further increase in the cost of coal and the additional costs which have fallen on the manufacture and distribution of gas since the outbreak of war. The evacuation scheme in the Stretford area has very considerably reduced the sales of gas, and in addition all revenues received from street lighting terminated with the introduction of the "black-out." Very heavy expenditure has had to be met in connexion with air raid precautions covering the Board's works organization and distribution system. Consumers' attention is drawn to the fact that the increased rate is much less than has been found necessary by many large undertakings in the country.

Gas Equipment at Colne's New School

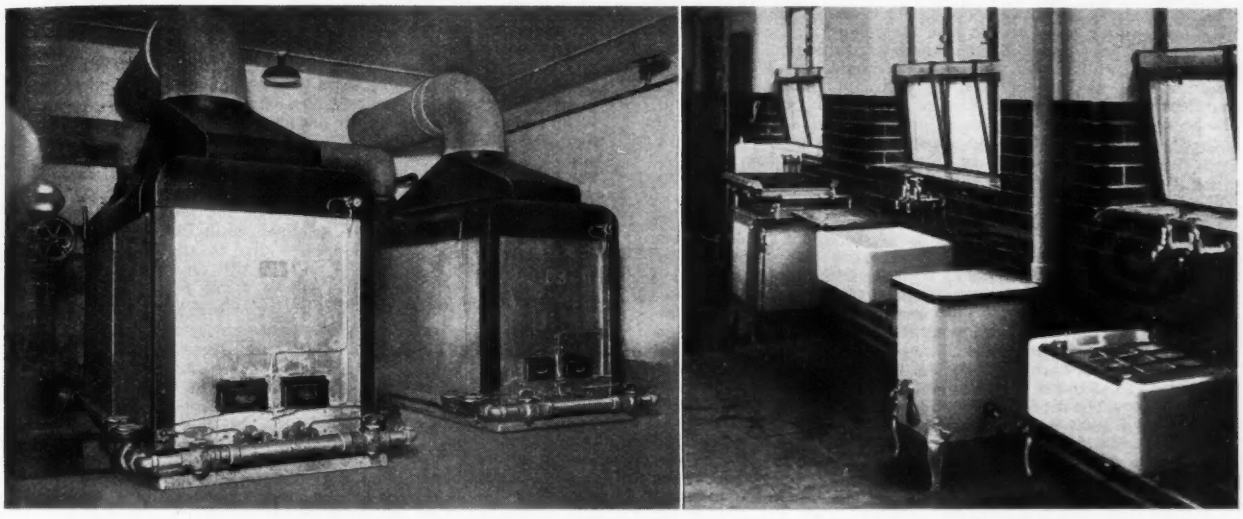
A comprehensive gas installation for central heating, domestic hot water supply, and the domestic science room is included in the new Primet Senior Council School which was opened on Nov. 6 at Colne

THE school, which is co-educational, accommodates 360 children with planned future extensions for eighty children. The site, which is eleven acres in area, is situated at the westerly end of the town, and the buildings are sited so as to leave as much space as possible for playing fields which are to be developed later. Provision is planned for hockey, football, cricket, and tennis, together with the playgrounds which have been constructed.

The whole of the building is heated by low-pressure hot water pipes and radiators. The heat in each room can be controlled without interfering with that in a neighbouring room. Hot water is supplied to the lavatory basins, sinks, &c., from a central source. Gas-fired boilers only are used both for heating and hot water supply. For central heating the Gas Department have installed two "Solar" boilers, one with a capacity output of 1,225,000 B.Th.U. per hour, and the other of 875,000 B.Th.U. hourly—a total of 2,000,000. For domestic hot water the "Solar" boiler has an output of 360,000 B.Th.U. per hour.

Gas plays a prominent part in the training of pupils at the new school, the equipment in the domestic science room comprising Radiation cookers in mottled enamel finish, two Dean's wash-boilers, a Glover drying cabinet, and a Wright's iron heater (35 irons), while in the model kitchen there is a Stoves, Ltd., "1958" cooker. The "Eco-Dry" cabinet supplied by J. Glover & Sons, of Earlsfield, S.W.18, is an innovation in local schools, though about 600 have already been installed in schools in the London and Home Counties area. The use of these cabinets is by no means restricted to teaching domestic science, as some teachers report that they use the cabinets for a multiplicity of purposes ranging from drying towels to drying damp books.

The whole of the gas equipment installed in the School was supplied by the Colne Corporation Gas Department.



On the left are two Lumby "Solar" gas-fired boilers installed in the new Primet Senior School by the Colne Gas Department. Right is a corner of the Domestic Science Room

Woodall-Duckham Contract in South Africa

Complete By-Product Coking Installation

The South African Iron & Steel Industrial Corporation, Ltd., have placed with the Woodall-Duckham Vertical Retort & Oven Construction Co. (1920), Ltd., an order for a second complete by-product coking installation to be built at their Iscor Steelworks near Pretoria. The value of this order is just on £475,000.

The new oven battery will comprise 45 top-charged, W-D Becker coke ovens designed for blast furnace gas underfiring. The ovens will be 40 ft. 8 in. long, 13 ft. high and 16 in. average width, and the battery will be capable of carbonizing 960 tons of washed coal a day. The new battery will be laid out on a new site, but on the by-product side advantage will be taken of the original facilities for extension.

The contract provides for two sets of electro-detarrers for the extended plant, and for a new concentrated ammonia plant capable of manufacturing liquor of 25% strength. The capacity of the benzole plant will be doubled, provision being made at the same time for the production of pure toluole.

Finally, a pipe-still type of tar distillation plant has been adopted to deal with 100 tons of crude tar per day, and this installation will produce finely cut fractions, including a suitable wash-oil for benzole recovery.

Control of Toluene

Ministry of Supply Order

The Minister of Supply has made the Control of Toluene (No. 1) Order under Regulation 55 of the Defence Regulations, 1939, under which he takes control of all toluene, toluole, and all other coal tar spirits containing more than 2% of toluene. None of these may now be acquired or used without a licence from the Ministry of Supply or sold at more than the declared maximum price, and sellers are responsible for seeing that the buyers have such a licence.

It is essential that the maximum possible amount of toluene should be available for the manufacture of high explosives, and for this reason the use of any crude benzole or any of its products for any purpose must be restricted unless its toluene content has been reduced to 2% or lower.

So much toluene is required for national purposes that supplies for ordinary industry will be reduced and substitutes should be used wherever possible. The low gravity benzole obtained from gas-works using continuous vertical retorts is included in this Order.

The Director of Explosives of the Ministry of Supply is responsible for the control of these materials and applications for licences should be addressed to him at The Adelphi, W.C.2.

Copies of the new Order may be purchased from H.M. Stationery Office or through any bookseller.

HIRE PURCHASE

There can be no better slogan for the gas sales departments of gas undertakings in these days than "Carry On." To do so effectively they must see to it that the high standard of service they have built up in the years of peace is unimpaired by the exigencies of war and that no facilities that can be retained without grave consequences are withheld a day longer than necessary. While the "JOURNAL" has stressed the need for continued sales of appliances, many undertakings have temporarily withdrawn their hire purchase schemes, and in the following notes an analysis is made of both sides of the argument—for and against a restoration of these facilities.

SOME of the steps taken in the early days of hostilities to put the country on a war footing were, if not unnecessary, at least a little more drastic than the circumstances of the times demanded. In contrast to the unpreparedness that marked the autumn of 1914, it was well that we should err on the side of caution, but as we approach a state of modified war-time normality we may look round to see how we can best "Carry On." Some of the things that were willingly pushed aside in the first few days of the war must be restored to the country's economic structure if industry is to win through. Nowhere is this truer than in the Gas Industry, in which far-reaching financial problems and large movements of population have created difficulties in maintaining trading conditions on the familiar high level of peace time.

Text for Reflections

If a text were needed for these reflections on the present situation it is to be found in this short news paragraph in the "JOURNAL" of Nov. 8: "Following the outbreak of war the Colne Corporation decided to suspend hire-purchase facilities in the Gas Department. Further consideration has now been given to the matter with the result that hire-purchase trading will be resumed subject to a slight modification of conditions." The first sentence is true of a great many undertakings, and it may well be that some of them will follow Colne's example and restore the facilities in the near future. If high finance were the only consideration there might be some ground for the withdrawal of easy payment facilities, but considering the extent to which the Gas Industry has relied—and not by any means in vain—upon the rewards of "Service" which go rather beyond the sphere of high finance there is at least as much to be said for the resumption of hire-purchase in these admittedly difficult times. In determining its sales policy the Gas Industry is concerned with three closely inter-related interests: the consumers, among whom it is true there may be a few "black sheep," but who, as a whole, constantly require new appliances if they are to continue to use gas; the appliance manufacturers who rely solely upon sales through gas undertakings for their existence; and, of course, the gas undertakings themselves, who in these abnormal times, cannot afford to incur any unnecessary financial risks.

To Be or Not To Be

The Case for Suspending Hire Purchase

Those undertakings who have suspended hire-purchase feel that, whereas instalment selling was a perfectly good policy in peace time, its financial complications render it unsound in the face of shortage of capital, restricted borrowing facilities, and the possible large and sudden movement of population. There are many difficulties in the operation of the Hire-Purchase Act, one of the chief of which is the possibility that when men are called up for active service and the family income is reduced the gas undertaking may be unable to obtain either payment of instalments or possession of the apparatus. War conditions have already revealed that gas undertakings have sold apparatus to consumers who could not really afford to pay for it when their circumstances were even slightly reduced by war-time restrictions. This overselling, it is contended, has been due in part to intense competition from electricity which made it necessary for gas undertakings to indulge in a policy that was not truly sound. One result of the war in some areas has been to bring the gas and electricity interests more closely together on this question of economic trading, and the hope has been expressed that when normal conditions return business in the two industries will be conducted on sounder and more commonsense principles.

A Question of Finance

The question of letting out appliances on hire or hire-purchase is primarily a financial question because these transactions cannot always be dealt with out of revenue. Very little money is available to finance such business and gas undertakings are, therefore, restricted in their activities with regard to hire and hire-purchase. In some districts to-day instalment selling is confined to appliances already in stock and those which have been returned from hire and hire-purchase. In many companies hire-purchase business is carried on with borrowed money, and it is felt that in these days of tightened finance, when money is hard to borrow, the loans should be reduced as and when the instalments are collected. It has been suggested that even if the undertakings are not prepared to increase their hire-purchase business they should at least keep their existing hire-purchase funds in circulation, using the money collected to pay for the new appliances sent out, instead of restricting the business to vanishing point. But the answer to that is that such a practice would involve a review of the financial position at short intervals and impose upon the undertaking a form of "hire-purchase rationing," with the result that in one quarter it would be able to do less business than in another because the repayments had not come in so well. While this "hand to mouth" system might work in some districts, it is not considered an adequate alternative to the wholesale cutting out of hire-purchase transactions.

A Controversial Point

The question as to whether it is better to let out appliances on simple hire raises a very important and controversial point so far as the Gas Industry is concerned, but it is generally agreed that hire-purchase, run on sound lines, is the better policy, in that it gives the consumer a sense of pride of possession and ensures for the undertaking a greater security of tenure.

In a typical southern reception area the demand for apparatus is, it is claimed, being met by utilizing appliances already in stock, and for which the undertaking has been very pleased to find an outlet. The undertaking in this area is not at present putting in water heaters on hire-purchase because a substantial part of the cost represents installation charges and the possibility of being saddled with such expenditure has persuaded the undertaking not to take the financial risk involved. The undertaking is maintaining hire-purchase on a restricted basis and is getting a better type of normal legitimate business than before. It is avoiding those agreements which were, in peace time, entered into under what it calls "fictitious" conditions where the consumer had no more than the slenderest prospect of meeting his obligations.

Transfers from District to District

Another difficulty in connexion with hire-purchase is the need for some general understanding with regard to the transfer of appliances from one undertaking's area to another. As present some will accept and make transfers while others refuse to do so. This causes a good many complications because people do in fact like to take their appliances with them when they remove, and the receiving undertaking that does not agree to take over the transaction places the undertaking which made the original contract in an unfortunate position because it has to accept instalments from people no longer living in its area or ask either for the payment of the outstanding balance or the return of the appliance.

Under long term hire-purchase agreements the period of the contract is occasionally longer than the period of the normal tenancy, which means that with the moving population the apparatus must be moved from one address to another, either within the area or to another district some distance away. Under their restricted hire-purchase policy some undertakings are clearing their old stocks of appliances and finding room for new designs and types which will be making their appearance in the future —of which they hope to dispose either by cash sales or simple hire.

In another area one of the largest companies has stopped its hire-purchase arrangements for the time being, excepting that a limited number of second-hand appliances returned from the district are being let out on terms spread over a period of two years. A part of this company's district is notoriously vulnerable, and the company is apprehensive of what might happen in the event of hostile disturbances. It is anticipated that in such an

event there would be a wholesale evacuation of the population, with consequent trouble in collecting instalments or recovering appliances only partly paid for. Simple hire is being continued practically on peace time lines, the only difference being that in the initial rental is included a sum sufficient to cover the cost of fixing. There is no capital that can be spared for the financing of hire-purchase business on a war-time footing, and the company is not disposed to employ the amounts coming in regularly to the cost of further hire-purchase appliances.

The Case for Hire Purchase and Simple Hire

The case for continuing to place new appliances, either by way of high-purchase or simple hire, within the reach of those consumers who cannot afford to pay cash down is the case for carrying on the Industry itself. For years the Industry has been making people gas minded, and if they are now to be denied the benefits of easy terms, which they can still get in other directions, they will become easy prey for competing fuels, and it will take a lifetime of effort to repair the damage done in the brief period of the war. Employed on anything like a peace time basis, the manufacturers can maintain their research and development work at a high state of efficiency, but if there is to be a wholesale suspension of sales their ability to continue their contribution to scientific development must become impaired. The problem raises no question of one branch of the Industry attempting to dictate to another, but it does raise the question of common action to preserve the common inerests of all sides.

If pre-war terms are impossible in certain areas in war time the case might be met by reducing the hire-purchase period from seven to five years, or from five to three years, and if there is any district too precariously placed even for such terms there is still room for simple hire as a means of keeping "gas consciousness" alive. So far as it is possible to judge, there will be sufficient raw material forthcoming to enable gas undertakings to supply at least the volume of gas to their consumers that they supplied last year, and the immediate objective should be to maintain at least the output of the previous year.

This is not the time or place to discuss fuel rationing; suffice it to say that the authorities have deemed it desirable to say at least as much gas may be consumed by any individual consumer as was used in the corresponding quarter of the previous year. Undertakings that decided at the beginning of the war to withhold any further extension of sales of appliances by hire-purchase terms have now been able, with the improved outlook, to reconsider the position. While it is difficult to generalize on the subject owing to the altered conditions which have arisen from the evacuation and other schemes whereby some undertakings have suffered a substantial reduction in the sale of gas and others have increased their consumption, it is a fact that in many areas the wage earner is able to obtain an increased amount of wages at the end of the week, and it should be the aim of the Gas Industry to ensure, as far as possible, that it obtains some portion of that increased earning in return for new and improved types of gas consuming appliances.

The Gas Industry is not alone in its quest for improved business; radio dealers, furnishing houses, and others are vying with each other to obtain business as the result of the greater spending power of certain classes of the community at the present time. True it is that in other areas there is, if not an actual depression, a desire on the part of the community to economize, and it is felt that expenditure on new appliances for the home may not at the moment be justified.

Apart from the desirability of obtaining the utmost consumption of gas there is another aspect of this "Carry On" campaign which affects the Gas Industry, and that is to maintain, as far as possible, the business of gas appliance manufacturers in order that they in turn may be able to retain their staffs and key men so that no depreciation in the service rendered by the manufacturers to the Industry shall occur. It is no secret that there has been a big drop in output from the works of the appliance manufacturers and while, as can only be expected, the makers are doing everything possible to obtain work which is necessary for the conduct and prosecution of the war, it is desirable that every effort should be made to retain chemists, development engineers, and technicians, as well as other grades in such establishments. If every gas undertaking faces the problem squarely it will be possible for some suitable scheme of hire-purchase to be devised which will enable them to carry on their sales and fitting staffs and the goodwill which they have established with the community in past years.

The Manufacturers' Point of View

There is no question about the feeling among manufacturers that the dropping of hire-purchase might well lead to a breaking of touch with potential gas consumers which might take the manufacturer many years to get back, if ever it came back. The continuance of hire-purchase by the cycle and kindred trades is instanced as indicating the absence of sufficient additional risk as a consequence of war to justify the entire suspension of hire-purchase by many gas undertakings up and down the country. Here is a true story told within the last few days:

"A man over military age and employed, too, in a reserved occupation, with an assured job during, and so far as can be seen after the war also, sought to purchase a gas cooker on hire-purchase terms from his local provincial gas undertaking. He was turned down without any consideration of his special case."

It is solely because gas undertakings are able to supply the necessary appliances on easy terms that many of the poorer sections of the community are able to use gas. On several occasions during the passage of the Hire-Purchase Act through Parliament the "JOURNAL" commented upon the importance of easy terms in connexion with the sale of gas appliances, and it was generally felt that the measure in the form in which it was finally adopted was in every respect fair and reasonable to the hire-purchaser and at the same time afforded proper protection to the undertakings, in that it became necessary for the hirer to pay the whole of the installation charges as specified in the hire-purchase agreement, together with a half of the hire-purchase price of the appliance, before he was entitled to return the goods. It is in the abuse and not in the use of the system that danger lies, and, as the "JOURNAL" remarked at the time, "it would be a pity if the hire-purchase system of which the Gas Industry has made so extensive and so beneficent a use were to get a bad name because of abuse in individual cases."

The sales manager of a firm of appliance manufacturers remarked the other day that gas undertakings should show more confidence and not shut off hire-purchase facilities as so many of them had done. They might well use discrimination in selecting the type of consumer to whom the system might be made available, and not be afraid of all of them because of the possibility of being let down by the few. Another mistake in his opinion was the cancellation of demonstrations directly the war started. He thought gas undertakings should utilize the afternoon for that purpose. People were tired of the black-out, and would welcome opportunities of getting together to study gas cookery problems over a cup of tea in the afternoon. Practically all the demonstrations in which he was interested had been cancelled and it seemed to him as if gas undertakings were losing confidence in their own Industry. The policy of direct sales from manufacturer to user had always been ruled out because of the problem of fixing and maintenance; in any case he did not consider it was the function of the maker to enter the domestic market just because a proportion of gas undertakings had decided not to proceed with their normal selling arrangements.

"Sales of appliances must be maintained if the Industry is to survive," was the view expressed in another section of the manufacturing industry. Many gas companies had not too much money these days, and for that reason any extension of simple hire was less attractive than easy terms. With hire-purchase there is always a measure of security which does not exist with simple hire. Some companies have reduced the periods for their hire-purchase sales; others have dropped the system entirely. Financial circumstances to-day are not favourable to wholesale extension of the system, but there is no reason why something approaching the normal level should not be continued.

A Large Company Carries On

In contrast to undertakings that have suspended or restricted their hire-purchase arrangements there are some outstanding cases where it has been deemed wise to carry on sales policies almost exactly as in peace time, with only slight modifications to meet the few abnormal circumstances of the times. A case in point is a large undertaking whose area comprises small strips of evacuation and reception areas and a large tract of neutral ground. Its sales policy has always been based on the one principle of giving good service. Its sales staff has been paid an adequate wage with no commission, and its attitude towards electrical competition has always been to leave the "enemy" to indulge in stunts and to rely on the merits of its own good service. Cash sales of appliances have never represented more than a small percentage of its business. There are simple hire facilities, of which prepayment consumers have availed themselves to a greater extent than the ordinary consumers. Hire-purchase terms have been available without distinction for both classes of consumer, and only in a negligible number of cases has the company met with any difficulty in collecting instalments or in recovering possession of unpaid-for appliances. It would not, even if it could, adopt any different system of collecting the instalments, and it certainly deems it better to follow its existing five-year hire-purchase terms than to substitute any heavy-rental simple hire system which would bring back the total cost of appliances in, say, seven years.

Unless any entirely unforeseen economic crisis develops the company is determined to continue its existing arrangements. True, there may be more people coming and going, but the company does not believe that the consumer in the mass will be any less honest than he has been in peace time. Indeed, the consumer who is buying an appliance on easy terms is calculated to be a much better proposition than the cash purchaser or the simple hirer.

The only change has been a slight revision of the terms to

ensure that the initial payment, instead of being the first of, say, 20 equal instalments, is sufficient to cover the installation costs. Having regard to the fact that the average tradesman to-day is looking for cash down, or at least a big part of the hire-purchase cost of his sales, before parting with the goods, the gas company's terms are believed to be highly attractive and at the same time they guard the company against heavy installation costs in those directions where tenants are constantly on the move.

At the same time the gas company does not entirely ignore the fact that there is a war on, and it looks not too optimistically upon any drastic changes in design at the present time. The consumer wants good sound reliable appliances and is not likely to be over-enthusiastic about ultra-modern designs that have been untried in peace time.

A peep behind the scenes of the sales department of one of the largest undertakings reveals a strong feeling on the part of the gas salesman that the suspension of hire-purchase is not in the best interests either of the Industry or their own pockets. Not only does the suspension jeopardize the goodwill that they have taken years to cultivate, but it cuts deeply into the earnings of the salesmen themselves, who find it easier to effect 20 hire-purchase sales than a single cash transaction.

The Gas Light and Coke Company and all the undertakings under the South Eastern Gas Corporation have made drastic cuts in their hire-purchase arrangements, but it would not be correct to say that the scheme is entirely suspended. The hire-purchase business throughout these undertakings was, it appears, already due for some kind of tightening up before the war began, and the new situation has provided an opportunity for combing out those transactions which, under the most favourable conditions, were always liable to leave the companies with unpaid instalments. Easy terms are now granted only in those cases in which there is unquestionable evidence of the hire-purchaser's ability to fulfil his obligations. It is felt that this "purge" will in the long run tend to promote more satisfactory business than could have been expected from any attempt—with large numbers of consumers disappearing from danger zones into "somewhere in the country"—to work up, or down, to the pre-war standard of allowing "terms" to all and sundry.

What About Simple Hire?

If large sections of the Gas Industry feel compelled to regard the cessation of hire-purchase as a fact, could they not fall back on a revival on a larger scale than hitherto of simple hire? Electricity undertakings already offer simple hire with a scheme of replacement of out-of-date apparatus from time to time, and it might be worth while to consider a corresponding scheme for replacing gas cookers after ten years' service. Under simple hire the appliance remains the property of the undertaking, which is at liberty to remove it if the rental payments are not maintained. Rent continues to be collected as long as the appliance remains in use or until the undertaking gives the consumer the option of purchasing it, and the unlimited payments make it unnecessary to alter the rates if costs are increased.

By calculating its simple hire rents on a five or seven year purchase basis an undertaking could recover the whole of its capital and expenditure certainly within ten years and would then be in a position to exchange the appliance for a new one, the original cooker being scrapped. One of the few disadvantages of the long period hire-purchase scheme is that when the payments are completed the consumer is reluctant to buy a new appliance but counts on getting many more years' service from the one he has purchased. The result is that some cookers remain in use for 20 or even 30 years, and the undertaking has difficulty in keeping the appliances on its district up to date. If, under the simple hire scheme here visualized, the cookers were replaced automatically after ten years, the Industry would be in a better position to resist electrical competition, which always threatens to become more severe.

Trade News

W. W.-D. Electro Detarrers

A well-produced brochure just published gives particulars of the Whessoe Woodall-Duckham electro detarrers installed during the last seven years. So far as town gas is concerned, the list of installations covers 22 plants having a total capacity of 142.5 million cu.ft. *per diem*, ranging from 1,130,000 to 13 million cu.ft. *per diem*, while the largest complete installation has a capacity of 25 millions a day. Including plants for coke oven and producer gas supplies, the total number of installations during the period under review is 40, with an aggregate capacity of 383.1 million cu.ft. *per diem*. We anticipate being in a position shortly to announce further details relating to fresh developments.

Full particulars of the W.W.-D. electro detarrer may be obtained from the Whessoe Foundry and Engineering Co., Ltd., Darlington, or from their London Office at 25, Victoria Street, S.W.1.

A New "Bland" Catalogue

Mr. F. J. Gould, Chairman of Bland Light (1934), Ltd., of Phœnix Works, Hoxton Square, London, N.1, has accomplished a fine job of work in producing the new "Bland" catalogue, 1939-40. Its 80 pages and hundreds of illustrations present a comprehensive picture of the wide range of fixtures, fittings, instruments and tools which the company is able to offer to the Gas Industry. Lighting equipment for indoor domestic use, ecclesiastical buildings, garage, and outside lighting occupy the greater part of the brochure, but there is also a striking variety of gas fires, boiling rings, wash boilers and water heaters, and the miscellaneous section includes practically everything required by the complete gas fitter. The catalogue was completed just before the outbreak of hostilities, with the result that many of the prices shown in the book are subject to more recent advances in cost.

Eagle Coke Heater

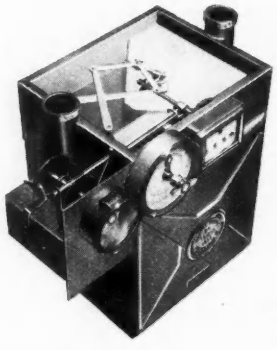
In the advertisement which appeared on p. 267 of our issue of Nov. 8 concerning the Eagle Coke Heater for A.R.P. requirements the wrong illustration was inadvertently included. Our readers will, of course, recall the description of this useful appliance which appeared in the "JOURNAL" on Nov. 1 (p. 249), and reference to this will show the correct appliance illustrated—which is also featured in our advertisement columns this week.

The "Brush-Koela" Gas Producer

Arrangements have been made by the Brush Electrical Engineering Co., Ltd., Loughborough, to take over the patents, manufacture, and sale of the "Koela" was producer, and this plant in future will be marketed under the name of "Brush-Koela." Producer units are already in successful use on lorries and buses and it is claimed that the fuel costs of a producer gas-operated lorry are only 20 to 25% of those for a petrol vehicle, and 50 to 60% of those for a Diesel vehicle at present prices. Anthracite and low temperature cokes are the fuels at present recommended for use in the producer, and application of the unit is possible in most cases without loss of load space, since this point was borne in mind during the design of the plant.

Metering Gas to Motor Vehicles

A meter specially designed for speedy filling of gas bags attached to motor vehicles has been developed by George Wilson Gas Meters, Ltd. This meter, although specially designed for speedy filling of a gas container, is of the positive dry type and will readily satisfy the requirements of the Board of Trade in every way.



At the front of the meter on the left hand side, two dials and the necessary mechanism are fitted. The device on the extreme left allows a predetermined quantity of gas to pass, before the meter shuts off automatically. The other 6 in. dial clearly indicates, to the purchaser, the quantity of gas delivered and can be easily reset to zero on each occasion.

The meter is of small dimensions and capable of withstanding a pressure of 50 in. w.g., while considerably higher pressures can be accommodated where required.

SIZES AND DIMENSIONS

SIZE	Capacity cu. ft. per hr. at 3" w.g.	Size of Connexions	Height to Union Bosses	Width over Unions or Flanges	Depth Back to Front
SMALL	800/1,000	1½"	21"	19½"	13"
MEDIUM	2,000	2½"	29½"	27"	17"
LARGE	3,000	3"	34"	34"	24½"

A Discussion on

BENZOLE RECOVERY

On Thursday, Nov. 2, a Special General Meeting of the Midland Association of Gas Engineers and Managers was held at the Grand Hotel, Birmingham, the purpose being to discuss the proposition of installing benzole extraction plant in view of the national emergency. The President, Mr. G. C. Pearson, (Birmingham), was in the Chair.

AMONG those present were Mr. George Dixon, President of The Institution of Gas Engineers, and Dr. W. T. K. Braunholtz. Secretary of the Institution and Acting Director of Research of the Gas Research Board. A letter from Mr. E. V. Evans, Chairman of the Research Executive Committee of the Institution and of the Council of the Gas Research Board, regretting his inability to be present at the meeting was read by the Hon. Secretary of the Association, Mr. J. H. Wainwright.

Before proceeding to the discussion Mr. Dixon presented Certificates to the following successful candidates in the Institution Examinations:

T. W. Benstead, Derby; E. F. Charles, Leamington Spa; J. A. Clayfield, Cirencester; C. H. Mason, Wellingborough; G. E. Cashmore, Birmingham; H. C. Keywood, Leicester; P. N. Nicholls, Sutton Coldfield; J. H. Plimsoll, Burton-on-Trent; G. E. D. Vose, West Bromwich; D. F. Blane, Bletchley; W. L. Howe, Beeston; S. E. Claydon, Birmingham; J. H. Evans, Birmingham; P. B. Hodgkinson, Birmingham; W. C. Smith, Bearwood; W. C. Stewart, Cannock.

New Members

As a result of ballot the following new members were elected:

V. O. Allbutt, Saltley, Birmingham; G. A. Bamber, Swan Village, Birmingham; J. H. Darrah, Nechells, Birmingham; W. L. S. Spinks, Fittings Superintendent, Birmingham; C. M. Walter, Industrial Research Superintendent, Birmingham; F. B. Waller, Stony Stratford.

The main business of the meeting was then begun, **Mr. Pearson** outlining the methods of benzole recovery as practised by the Gas Industry—the use of activated carbon and oil washing. In regard to active carbon, insufficient material was available, and thus they must concentrate attention on the use of oil. It was true that the circulation of a comparatively small quantity of oil would effect the stripping of the toluole from the gas, but the necessary plant would cost almost as much as plant taking out, say, 90% of the benzole, at the same time reducing the sulphur compounds in the gas. With copious washing the sulphur content could be reduced to 10 grains per 100 cu.ft. but, while this was obviously desirable for domestic supply, it would not help very much the use of gas for industrial purposes, and in the present circumstances they might confine consideration to washing for 90% of the benzole present in the gas.

Quantity of Benzole Recoverable

Mr. T. F. E. Rhead (Birmingham) who was then called upon to speak, first referred to the quantity of benzole which could be recovered from gas. This, of course, depended upon the type of coal carbonized. With Yorkshire coals the theoretical quantity obtainable was 4 to 4.2 gallons per ton. Lancashire, Nottinghamshire and Derbyshire, and Welsh coals gave lower yields, in that order. Then, again, the type of carbonizing plant employed had a profound effect on benzole quality. With horizontals and intermittent plant the benzole would contain more aromatics, while with continuous verticals it would contain more paraffins, which rendered separation by fractionation more difficult. Mr. Rhead then called attention to the testing apparatus exhibited at the meeting and developed by the Fuel Research Board, the Gas Light and Coke Company, and the National Benzole Association. The modern methods of test, he said, were very searching, the amount of crude benzole being established by freezing it out of the gas by solid carbon dioxide, the gas being passed through the apparatus at a rate of about 1 or 2 cu.ft. per hour. The apparatus, which enabled them to differentiate between different types of carbonizing plant, was a very useful tool.

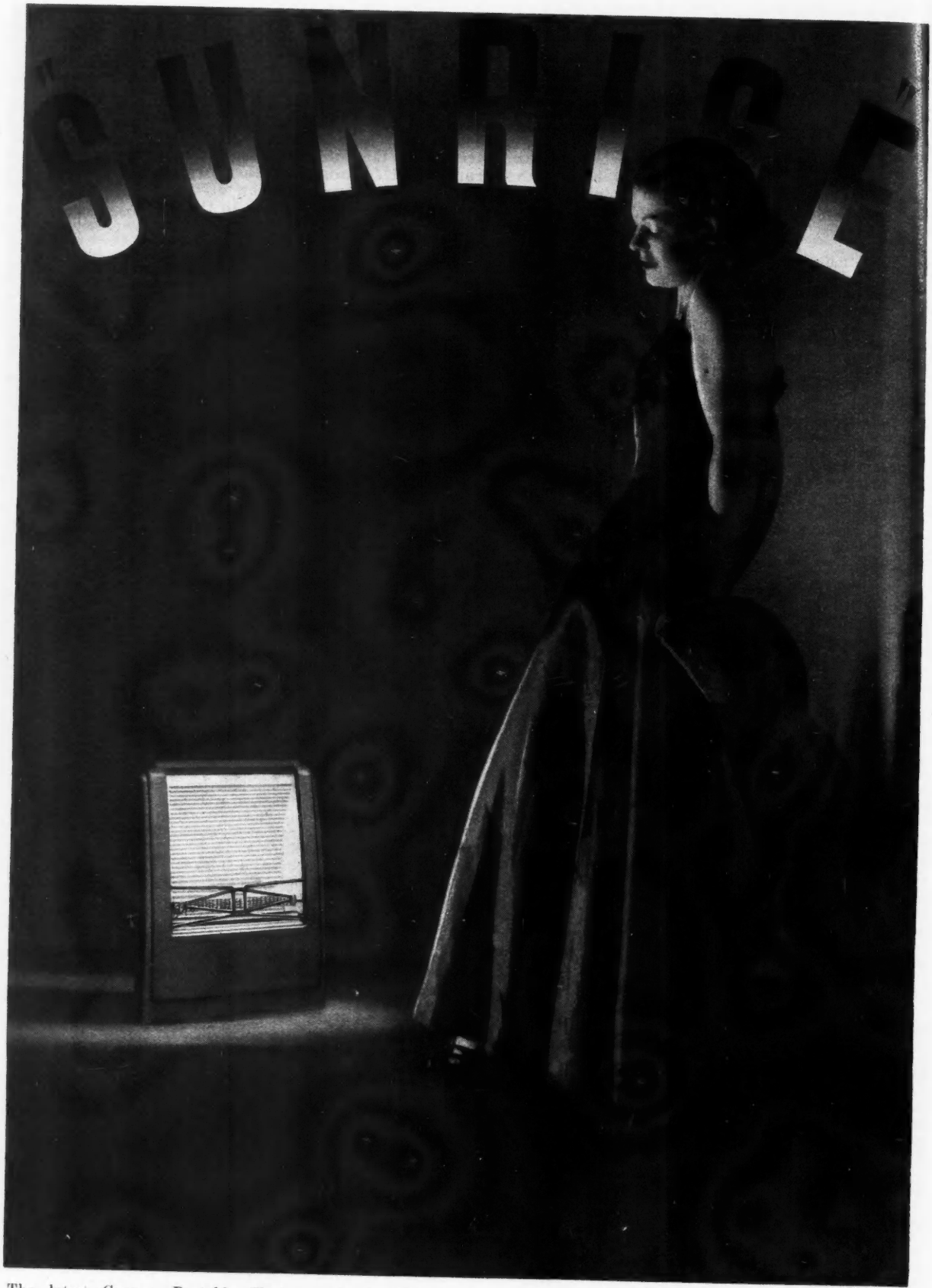
Mr. Rhead next discussed the effect of benzole washing on the calorific value of gas produced in continuous vertical retorts with steaming. He calculated that recovery of three gallons per ton would reduce the C.V. of 503 B.Th.U. gas to 476 B.Th.U., 476 B.Th.U. to 453 B.Th.U., and 451 B.Th.U. to 431 B.Th.U. A gas of 450 B.Th.U. was supplied by many members of the Association, and he queried whether it would be a sound proposition to reduce this to 430 B.Th.U. with benzole washing. If they redeclared the C.V. to a lower figure, then with washing for three gallons of benzole, 6% more retort capacity would be needed. If, instead of redeclaring they supplied the same C.V. and made a richer gas at inlet of washer, then for 503 B.Th.U. gas they would need a 531 B.Th.U. at inlet to washer; for 476 B.Th.U., 503 B.Th.U.; for 451 B.Th.U., 474 B.Th.U. They would need 16% more coal and plant and there would be 20% more coke for sale. The financial aspect was bound up with calorific value. If a re-declaration was made, the benzole therm could be taken as being of the same value as the gas therm. If, on the other hand, more plant had to be put into commission, there would be the question of what charge should be made for interest on capital, and so on. Much depended on the load factor. Mr. Rhead went on to speak of the value of benzole as an enricher. At one works a figure of 4d. per therm might be taken, at another works 6d. However, they were hoping to go ahead with benzole recovery in Birmingham, extracting three gallons per ton of coal carbonized, making 2½ million gallons a year.

Mr. A. Mackay (Stoke-on-Trent) said that Mr. Pearson had given the impression that, from the commercial point of view, there was little advantage in reducing the sulphur compounds in gas. He entirely disagreed with this view. He had had to reduce sulphur compounds in his own district to meet the requirements of industry. Another point he would raise was what were the members going to do with the benzole? Through what channels was it going to be sold?

Mr. Pearson said that what he intended to convey was that at the present time recovery of benzole was a matter of greater importance than the reduction of sulphur compounds.

Measures Taken by Institution

Dr. Braunholtz then addressed the meeting, explaining what measures had been taken by the Institution through the Gas Research Board in consultation with Government Departments in regard to the extraction at gas-works of benzole and toluole, mentioning the memorandum prepared by Dr. Hollings and the questionnaire which had been circularized to all gas undertakings. He gave the meeting clearly to understand what the requirements and needs of the Ministry of Supply were in regard to toluene and explained that the question of gravity of the product need not cause uneasiness among those operating continuous vertical retorts. It should be remembered, too, that toluene could be used for other purposes than the manufacture of explosives. Commenting on adjustment of declared C.V. of gas made in continuous vertical retorts, he said it had been suggested that it would be difficult in the case of some undertakings supplying a gas of 450 B.Th.U. to lower the calorific value with benzole extraction, or alternatively, to raise the calorific value of the unstripped gas. This difficulty, he suggested, might be overcome by compromise, declaring a value somewhat lower than 450 B.Th.U. and making an unstripped gas of a calorific



The latest Cannon Portable Heater made by Cannon Iron Foundries Ltd., Deepfields, Nr. Bilston, Staffs.

value somewhat higher than 450 B.Th.U. In any case, each engineer should consider extracting toluole.

Mr. C. F. W. Rendell (Redditch) maintained that the question must be looked at from the point of view of economics; and those operating continuous vertical retorts did not know what price the benzole would fetch. They must also know the measure of the nation's need. He had attempted to draw up a balance sheet for benzole extraction from continuous verticals, but could not arrive at a case for making a profit.

Mr. A. W. Smith (Birmingham) said that if toluene was needed for the manufacture of explosives—and they were assured it was—they should go ahead with its extraction. As to disposing of the crude benzole, there was no definite information, but the simple and natural way was to pass it on to the Midland Tar Pool, where it would be evaluated on an agreed basis.

A Duty

Mr. George Mitchell (Worcester) referred to the extraction of toluole as a duty which gas undertakings were called upon to perform, and which they should face.

Mr. Charles Ingham (Cannock) explained that for some years he had been extracting 3½ gallons of benzole per ton of coal carbonized, sending out a gas of 450 B.Th.U. At the same time he had reduced the sulphur compounds in the gas to between 5 and 10 grains per 100 cu.ft., and he had found the cost of effecting this reduction little more than that of recovering the benzole. In regard to additional carbonizing plant when extracting benzole, it was possible to discontinue benzole recovery at times of peak load.

Mr. A. G. Cranmer (Wolverhampton) spoke of the decreased yield of tar per ton of coal carbonized if a stripped gas of 450 B.Th.U. was sold, to make which an unstripped gas of, say, 475 B.Th.U. was required. The question of the additional coke made was also important, and he envisaged the position which would be brought about by increased coal costs and lower coke for sale prices.

Dr. C. M. Walter (Birmingham), who was asked by the President to speak on the effect of a reduction of calorific value on the performance of industrial heating appliances, remarked that during the last war no difficulty was experienced. He anticipated no difficulty now provided they could maintain the calorific intensity. Certain adjustments to the burners might have to be made, and in some types of furnace there might be a little loss of efficiency through dilution of the products of combustion. Except with a few furnaces where flame form was of importance, he considered there was no cause for worry—provided, as he had said, that calorific intensity was kept up.

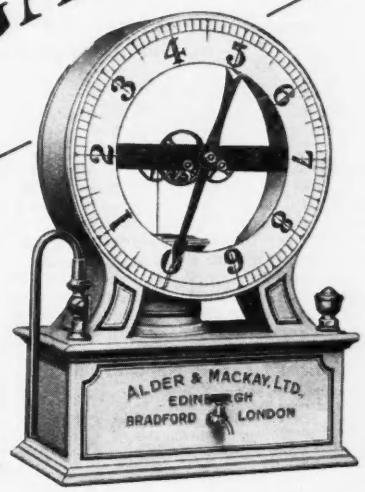
Financial Responsibility

Mr. F. C. Briggs (Dudley) remarked that, however patriotic they were, they had the responsibility of looking after the finances of their respective undertakings, and before embarking on schemes they should make sure of the position. With benzole extraction they might have to increase plant by 6% or by 16%. Was the Government going to help them at all in the matter? In his own case he would have to increase his entire gas-works, not merely his carbonizing plant. Again, with a reduced calorific value, more gas would have to be sent through the district mains and services, and they had to consider the effect on the working of the meters. Also they would automatically reduce the storage safety factor.

Mr. George Dixon (Nottingham), remarking that the economics of benzole recovery was governed by particular circumstances, said that at Nottingham there were two sources of coke oven gas supplying consumers en route. The C.V. of the gas was 490-500 B.Th.U. What would be the effect if he put in a benzole plant, increased the C.V. of his unstripped gas to 485 B.Th.U. and stripped to 460 B.Th.U.? How would consumers be affected by variations in calorific value? He mentioned this in view of the importance of maintaining the goodwill of the consumers, on the building up of which so much effort had been expended.

Mr. J. Mitchell (Leicester) said he was again considering the question of benzole recovery, and he would prefer to increase the calorific value of the unstripped gas rather than re-declare the value. Before the outbreak of war he had been anxious to reduce the sulphur compounds in the gas; and looking to

King's PRESSURE GAUGES



Illustrated is the Circle Gauge for 9" readings which is a particularly sensitive instrument. The brass spindle is located on roller bearings and the black figures are 1¼" high on a 14" diam. white enamelled dial. The filling plug and gas connection are interchangeable.

Further particulars of other gauges and prices will be sent on application.

ALDER & MACKAY LTD.

EDINBURGH - LONDON - BRADFORD & BRANCHES

the future he thought it wise to install washers capable of dealing with the circulation of oil necessary for the reduction of sulphur.

Mr. Rendell then gave the meeting certain figures he had ascertained taking a gas of 540 B.Th.U. produced in continuous vertical retorts and presumably without much steaming. He said that on no account would he go below a gas of 475 B.Th.U., and it was on this basis that he had examined the matter closely and in the light of supplying 400 million cu.ft. of gas a year having a calorific value of 475 B.Th.U. per cu.ft. He then stated the "before and after" assumption with a recovery of three gallons of benzole per ton of coal carbonized. Pessimistically he took the value of coke as £1 per ton—that is, the extra coke made as a result of benzole extraction. After making an adjustment on the published prices for crude benzole in accordance with the expected paraffin content of the product, he had come to the conclusion that the annual profit on the transaction would not be substantial.

The Honorary Secretary at this stage read a communication from Mr. Webb (Stourbridge), who was extracting two gallons of benzole per ton of coal carbonized. He revealed the actual profit as compared with that anticipated.

Mr. G. M. Gill (Severn Valley Corporation) expressed the opinion that the difficulties regarding the alteration of calorific value were in fact not so great as was commonly supposed, but he suggested that lowering of the calorific value consequent upon benzole recovery had many disadvantages. It meant reduction in the capacity of plant, of services, of meters. He recalled the time when the Severn Valley incorporated a small company which for one reason or another had reduced the calorific value of the gas supplied from 500 B.Th.U. to 450 B.Th.U. Frankly, the capacity of the mains could not stand the strain, and what he did in the circumstances—it was the obvious thing to do—was to raise the calorific value again to 500 B.Th.U. per cu.ft. And he failed to see why it was not reasonable to shut down benzole production at times of peak load.

Economics of Benzole Recovery

Further Discussion on Mr. A. C. Rea's Paper to the North British Association of Gas Managers—See last week's "JOURNAL," page 345.

In a further letter Mr. **Nicol Baird** (Dunfermline) wrote to the Author: With regard to your letter, your first point is that I put the whole loss of a supposed drop of a shilling per ton against the benzole plant. In the first place many works were not and are not realizing 25s. per ton for their coke at all, and so if their average price is 24s. per ton, or less, their loss is in proportion. The main object of my Paper, however, was to show that a sudden rush in the Industry towards taking out the maximum amount of benzole meant a sudden increase in coke production all over the country. Stocks of coke at the time of writing were high and accumulated to ridiculous proportions later on. The advent of war temporarily changes the situation and I firmly believe that a much worse coke glut will follow the new armistice.

Mr. Baird summarized his other points as under:

Additional purification costs, at least	£5
Extra maintenance on coke handling plant	0
Cost of holding coke in stock and future handling	0
Increased coal stocks for emergency, money idle	0
Extra coke sales effort	0
Boiler water and other costs	0
Reduced efficiency of boilers at peak loads	0
Extra man per shift for several weeks	30
Fallen price of tar during the other 8 months	60
Income Tax at 7s. 6d. in the £1 on £300	112
Local rates increase	40
Probable extra retort maintenance	80
Benzole plant maintenance	25
On costs, laboratory work, book-keeping, licence, &c.	0
Repayment of capital in 10 years / Interest } 15%	450
	£802
Less	761
Annual Loss	£41

This is without putting a value on the above items, without looking to the future additional costs in coal which are not offset by coke prices.

Mr. **Rea** replied as follows:

Your further letter on this benzole business is again welcome as it contains additional aspects which I appreciate are adding to my detailed knowledge of this subject.

I gather that you acknowledge that the coke market is one of fluctuations, often violent, and that stocks may be excessive one year to be completely cleared in the next, and so it is unwise to take specific times for making a comparison, but rather a general average. Cycles in trade are now so regular that it is well to accept any good year with reserve, to be offset for the next slump. As a practical means of utilizing any potential surplus which might accumulate from benzole recovery, much of this could be used in boilers on gas-works, with the strong conviction that the policy was correct, though it may demand an economic sacrifice. I should agree that the balance without the complication of actual increase in gas sales clarifies the position. My endeavour was to keep to actualities and avoid assumptions, as the results are going to be beneficially influenced by increased throughput.

Regarding the boiler plant, we use river water treated with "Algor," and I find the cost of treatment about ¼d. per 1,000 lb. steam—say, £3 in period of balance sheet. I only burn about 600 tons per annum, against 2,000 tons before installation of waste heat boilers, so that capacity is ample.

I use the same labour in the retort house the whole year round and have not added to this in recent years. In fact, I consider that the addition of the benzole plant gives a higher load factor on the plant and thus reduces overall costs, while at the same time the load can be immediately reduced by shutting off the benzole plant. No extra coal storage need be carried, therefore, on the account of greater throughput.

We are still getting the benefit of the carriage on tar sent to Scottish Tar Distillers, as we are considered to be distillers.

Granted, the rise in coal prices will affect the profit, in the present case to about £150. This will be partly offset by the 4s. rise per ton in export coke, but again this is particularizing, and who knows to what extent residuals may also rise in the near future?

I am afraid there are too many other influences affecting the costs of retort maintenance to make a true comparison between Glover-West and Woodall-Duckham benches, but as to scurfing, I am finding that the larger Glover-West retorts of the new bench (50-in.) require longer to scurf than the 33-in. of the old.

Your remarks on rates and taxes opens up a new point which I do not remember having been raised before and which I had not considered when assessing the final profit.

Our financial position is:

Repayment of capital ex Sinking Fund over 20 years = £3,000 / 20	£150 per annum
Interest on borrowed capital, at say, 3%: 1st year = 3% on £3,000	90
Income Tax on profit at 5s. 6d. on £823	226
Rates—proportion paid on above profit	215
	£681

Taking the items in your summary, I would make the following observations:

Purification costs would increase due to a higher concentration of sulphur compounds in the gas causing earlier fouling. This might be offset by the oxide working up to a high fouling point, for the same reason. With a 13% increase in coal used for the same amount of gas made, and taking the first case, being the extreme condition, my costs would be increased by £27 for the four months.

Maintenance of coke handling plant is covered in the net average price of coke sold.

Whether extra stocks of coke accumulate is not dependent on the make but on the sales, and, as previously mentioned, this is a law not materially influenced by the supply.

As to sales effort, this again is a re-allocation of work at no extra cost to the Department, though I have been seriously considering appointing some one to take up this work, so that we could get the benefit between home and export prices, but the Government Rationing Scheme has rather cut this out meantime.

Boiler feed water treatment costs 0.35d. per 1,000 lb. steam,

approximately £3 for period. The boliers are of ample capacity for peak loads.

No extra labour is employed in carbonizing and any required in the yard is set against the working costs and so covered in the net price of coke sold.

Tar prices have not fallen this year, and I am hopeful of an improvement.

Rates and taxes must be definitely met together with repayment of capital, and this would absorb £681 for the first year.

Maintenance of retort plant has been covered for the extra tonnage, and probably this figure would be reduced with the higher calorific value and less steaming.

No maintenance should be required in the first few years of the benzole plant, and any required would be more than offset by the reduction in interest charges. Actually £7 has been spent on oil for the engine.

Oncosts, laboratory work, book-keeping, &c., are re-allocations. £1 per annum is paid for a benzole storage licence.

The total additional expenditure above amounts to £719, which would leave a profit of £215 per annum.

This rise of 1s. per ton in coal will mean an additional expenditure of £150 per annum, but the 4s. rise in export coke will reduce this by £50. The increase in income tax from 5s. 6d. to 7s. 6d. reduces profits by a further £80 leaving very little on the right side. Benzole prices should now rise to re-establish the pre-war margin of profit. A 1d. per gallon would give £260 per annum.

Inauguration of New Gasholder at Gourock

The ceremony of inauguration of the new gasholder at Gourock was performed by the Convener of the Gas Committee, Councillor S. Y. Cadden, on Nov. 3. The holder, which is a two-lift spiral-guided with a capacity of 155,000 cu.ft., was erected by Messrs. H. Balfour & Co., Ltd., of Leven, and replaces a column-guided holder erected in 1896.

At the Luncheon following the ceremony, Mr. W. Lindsay Burns (Managing Director of Messrs. H. Balfour & Co., Ltd.), replying to the toast of "The Contractors," proposed by the Chairman, stated that his firm had a long and pleasant association with the Gourock Gas Department, and he thanked the Corporation for their support. Their work at home was principally confined to Scotland—although they had an extensive foreign trade—and they were always pleased to receive the support of Scottish firms and Corporations; their employees were at present in the vicinity of 1,000. The Gourock gasholder had been erected under the supervision of Mr. James Simpson, one of their oldest employees, but still capable of doing excellent work. They were also indebted to Mr. Cowper their Outside Manager. Mr. Burns said he had to compliment Mr. D. V. Reid, the Gas Engineer and Manager, on his excellent specification, and for his foresight in providing adequately for the future.

Mr. R. D. Keillor (Gas Engineer and Manager, Greenock), replying to the toast of the Gas Industry, ably proposed by Bailie J. Stevens, stated that the real importance of the Gas Industry at the present time could not be over emphasized; when they heard of the greatness of the Industry they felt proud to be associated with it. In this country they owed much of their economic stability and domestic comfort to the extensive use of gaseous fuel in industry and in the home. Great Britain actually had the largest sale of coal gas *per capita* of any country in the world, and Britain took second place only to America in respect of total annual sales of gas.

Continuing, Mr. Keillor observed that Germany produced less than one-half of the quantity of gas produced in Great Britain. The somewhat belated revision of the gas rationing scheme would mitigate to some extent the hurtful effect of the blackout upon our industry. The lighting restrictions alone were having a serious effect upon gas undertakings, and would materially reduce the tonnage of valuable by-products made available. The cost of gas production would undoubtedly be affected and a general increase in the price of gas would be necessary in this district in the near future. The Corporation of Gourock were to be congratulated upon their enterprise in providing the new gasholder which they were privileged to see officially opened that day. The Corporation were also to be congratulated on having as their Gas Engineer and Manager Mr. D. V. Reid. Mr. Reid's technical qualifications were well known and he had made several important contributions to the transactions of Gas Associations.

Mr. W. Marshall (General Manager of the Largs Gas Department) suitably replied to "Our Guests," and Mr. A. Jamieson (Engineer and Manager, Johnstone) proposed the toast of the Chairman.

THE
EWART
'EMPIRE'
MULTI-POINT
GAS WATER HEATER
(Non-condensing)

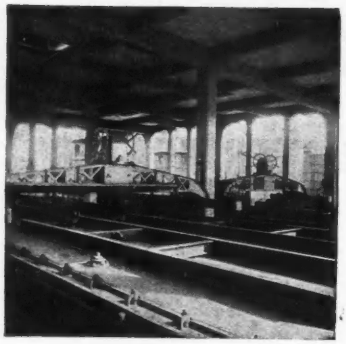
Capacity 3½ Gals. per min. (Raised 40° F.)
Constant Gas Governor, Auto-Lighter and Pilot Safety Control, included without extra charge.

IMMEDIATE DELIVERY TO GAS UNDERTAKINGS.

EWART & SON LTD.
346-350 EUSTON ROAD LONDON N.W.1
'PHONE: Euston 4488 'GRAMS: Geyser London

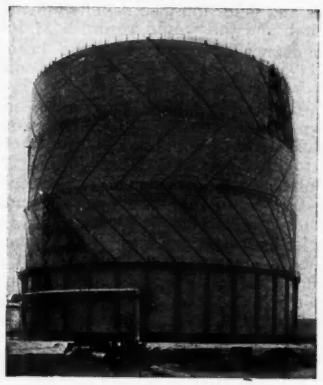
361

SAML. CUTLER & SONS, LTD.



GASHOLDERS

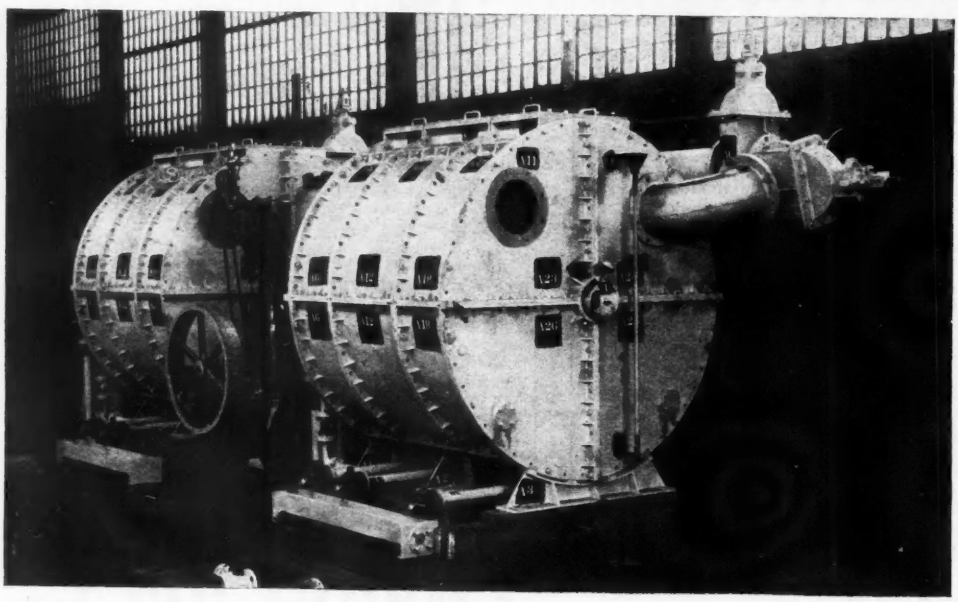
GUIDE FRAMED
SPIRAL
KLÖNNE WATERLESS
RECONSTRUCTIONS
REPAIRS



PURIFIERS CONDENSERS RETORT HOUSE EQUIPMENT
STEEL TANKS FOR OIL STORAGE & GASHOLDER PURPOSES
COAL AND COKE HANDLING PLANTS

Westminster— 39, Victoria Street **LONDON** *Millwall—* Providence Iron Works

483



ALL SIZES OF Rotary Washers

WORKS:
C. & W. WALKER LTD.
Donnington, Nr. Wellington, Shrops.
Phone: LILLESHALL, SHROPSHIRE 34 & 35.
T'grams: "FORTRESS" DONNINGTON, SHROPS.

LONDON OFFICE - TEMPORARY ADDRESS:
Donnington, Wellington, Shropshire.

Markets and Manufactures

Current Sales of Gas Products

The London Market

Nov. 20.

There is little of interest to record in the London tar products market, to-day's values being as follows :

Pitch about 32s. 6d. per ton f.o.b.
Creosote about 5d. per gallon.
Refined tar 3¼d. to 4d.
Pure toluole is nominal at 2s. 6d. to 2s. 7d.
Pure benzole about 1s. 9d.
95/160 solvent naphtha about 1s. 10d.
90/160 pyridine 14s. to 14s. 6d.
All per gallon naked.
Refined naphthalene crystals about £16 per ton in bags.
All *ex* makers' works.

The Provinces

Nov. 20.

Crude Gas-Works Tar, 10s. to 15s.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were : Pitch—East Coast, 25s. to 27s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 25s. to 27s.* Toluole, naked, North, 1s. 10d. to 1s. 11d. Coal tar, crude naphtha, in bulk, North 7¾d. to 8¼d. Solvent naphtha, naked, North, 1s. 4¼d. to 1s. 5d. Heavy naphtha, North, 1s. 2¼d. to 1s. 3d. Creosote, *ex* works, in bulk, North, liquid and salty, 3¾d. to 4¼d.; low gravity, 4d. to 4½d. Carbolic acid, 60's, 1s. 7d. to 1s. 10d. Naphthalene, £13 10s. to £16. Salts, 70s. to 75s., bags included. Anthracene, "A" quality, 4½d. to 4¾d. per minimum 40% purely nominal, "B" quality unsaleable. Heavy oil : Unfiltered anthracene oil, min. gr. 1,080, 4¾d. to 4⅞d.; filtered anthracene oil, min. gr. 1,080, 5¼d. to 5½d.; heavy tar oil, gr. less than 1,080 4½d. to 4¾d.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls, whatever they may be.

Scotland

GLASGOW, Nov. 18.

Demand continues quite brisk for all products excepting tar and pitch, but prices show no material alteration throughout the week.

Crude gas-works tar.—Actual value is round 30s. to 32s. per ton *ex* works in bulk.

Pitch of vertical quality is offered freely at 23s. to 24s. per ton, f.o.b. for export, and round 20s. to 22s. 6d. per ton *ex* works in bulk for home trade.

Refined tar remains without interest, prices being unchanged at 3¾d. to 4d. per gallon, in the home market, and 2¾d. to 3d. per gallon for export, both filled into buyers' packages at makers' works.

Creosote oil.—Some substantial business has been placed in the home market and to-day's prices are as under : Specification oil, 4¾d. to 5d. per gallon ; low gravity, 5¼d. to 5½d. per gallon ; neutral oil, 5d. to 5¼d. per gallon ; all *ex* works in bulk.

Cresylic acid.—Production is readily disposed of at current prices as follows : Pale, 97/99%, 2s. to 2s. 3d. per gallon ; dark, 97/99%, 1s. 10d. to 2s. per gallon ; pale, 99/100%, 2s. 6d. to 2s. 9d. per gallon ; all *ex* works in buyers' packages.

Crude naphtha.—Available supplies command 6d. to 6½d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha.—90/160 grade is now 1s. 7½d. to 1s. 8½d. per gallon and 90/190 heavy naphtha 1s. 3½d. to 1s. 4½d. per gallon.

Motor benzole is called 1s. 6d. to 1s. 7d. per gallon.

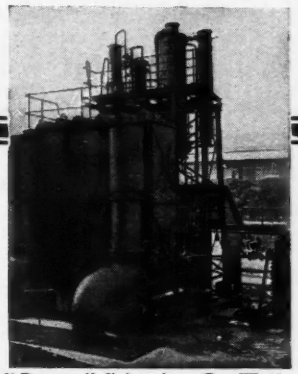
Pyridine.—Prices are purely nominal at 12s. to 13s. per gallon for 90/160 grade and 14s. to 15s. per gallon for 90/140 grade.

The Danish Gas Company

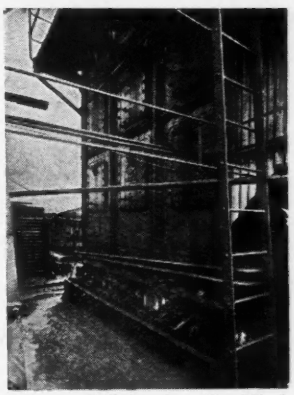
The 85th Annual Ordinary General Meeting is to be held on Dec. 4, at the chief offices of the Company, Magelos 1, Odense, at 12 noon. To enable the shareholders resident in England to meet the English Directors before the General Meeting, an informal meeting will be held at 34, Victoria Street, Westminster, on Friday, Dec. 1, at 12 noon.

The accounts of the Company for the year ended June 30, 1939, show that the balance standing to the credit of profit and loss account, after charging pensions, administration expenses, &c., and transferring Kr. 260,347.83 to the redemption accounts, is Kr. 777,448.37. Out of this sum the Directors recommend that a dividend of 6%, or Kr. 8.10 per share, be declared. This will leave Kr. 522,298.37 to be carried forward, an increase of Kr. 16,573.40 on the amount brought in.

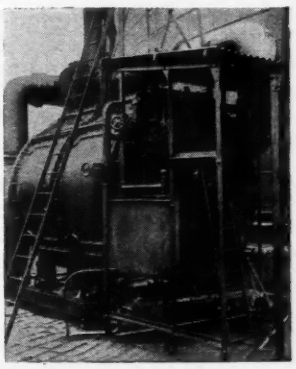
Capital expenditure of Kr. 123,548.02 for additional mains, services, meters, &c., has been incurred during the year, and necessary renewals and repairs have been carried out so that the Works are in a condition to meet the demands upon them. The quantity of gas sold during the past year shows an increase of 1.6%. The Directors are elected yearly and the members of the present Board offer themselves for re-election. Sir N. E. Waterhouse, F.C.A., offers himself for re-election as Auditor, and Messrs. Price, Waterhouse & Co. offer themselves for re-election as Deputy Auditors.



"Permac" Joints in a Gas Works.



"Permac" Joints in a Gas Works.



"Permac" Joints in a Gas Works.

Permac
METAL-TO-METAL JOINTING MATERIAL

Ever since 1913 "PERMAC," the original Metal-to-Metal Jointing, has been holding up difficult joints like these in important Gas Works and on Coke Oven Plants all over the world. Equally suitable for any joint—steam, water, gas, oil—screw pipe or flange. Send for particulars.

Manufactured only by

Thomas & Bishop LTD.

37, Tabernacle Street, LONDON, E.C.2

Telephone : Clerkenwell 3351 (2 lines)

WEST'S service to the Gas Industry will continue...

At the present stage of the national emergency we are in a position to form some idea of the conditions under which engineering production for the Gas Industry will have to be carried on in the immediate future

GLOVER - WEST VERTICAL RETORTS

WEST VERTICAL CARBONIZING CHAMBERS

COAL AND COKE PLANTS

With a number of Contracts in progress and with many orders on our books for resetting and maintenance parts, we find we are able to carry on with existing Contracts, and to meet all requirements for the normal repairs and maintenance of existing installations

We trust that our clients will not hesitate to send us their enquiries for new plant, renewals or spare parts, relying upon us to do our very best, under whatever conditions may exist from time to time, to fulfil as heretofore our obligations to the Gas Industry

WEST'S GAS IMPROVEMENT CO., LTD.

MILES PLATTING . MANCHESTER 10 Telephones—Collyhurst 2961-2-3-4-5

LONDON OFFICE TEMPORARY ADDRESS:

BATH ROAD . HARMONDSWORTH . WEST DRAYTON . MIDDLESEX

Telephone—West Drayton 2375

FOR EVERY SIZE OF WORKS AND EVERY CLASS OF COAL...

WEST'S CARBONIZING PLANTS

GAS STOCKS AND SHARES

Although the volume of business was on a slightly reduced scale, conditions on the Stock Exchange were firm throughout the whole of last week and prices well maintained. A feature was the strength of gilt-edged securities and on Friday War Loan touched its highest price on an ex dividend basis since the outbreak of war. Home rails remained inactive though a somewhat better tone was in evidence towards the close. Leading industrials were eagerly bought on any fall in prices, though despite this support it is not anticipated that securities in this section will show much marked improvement on account of taxation uncertainties. Rubber shares were more active on the increased quota, but oils and mines were quiet and featureless.

More Stock became available in the Gas Market and the volume of business was consequently a little heavier than the previous week, especially in the Supplementary List. On the whole prices in the Official List remained firm and with a few others several Gas Light fixed-interest stocks were marked up a point or two while some margins were halved. The only fall of note was that of Brighton 6% which closed 9½ points lower at 102½. Turning to the Supplementary List it will be seen that nominal quotations have now been brought more into line with current values and apart from the few stocks previously dealt with all prices have been marked down. It will be noticed, however, that the fixed-interest variety are still quoted 5 to 10 points higher than similar interest bearing stocks in the Official List. The heaviest losses occurred among "ordinaries" and some severe depreciations can be noted. Among these the heaviest hit were the following:—Bognor "A" 32, Guildford 35, Luton "A" 45, Peterborough 31½, Slough 20, and Yorktown 29½.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
1,767,439	Sept. 4	8	8	Alliance & Dublin Ord. ...	110—120	...
374,000	June 19	4	4	Do. 4 p.c. Deb. ...	80—90	...
877,576	Nov. 6	5	5	Asscd. Gas & Water U'd'ts Ord.	14/6—16/6	...
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	17/6—19/6	...
535,545	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	16/—18/–	...
318,730	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	15/—17/–	...
750,000	Sept. 18	3½	3½	Do. 3½ p.c. Red. Deb. ...	80—85	...
560,070	Aug. 21	7	7	Barnet Ord. 7 p.c.	110—120	...
300,000	Oct. 9	1/9⅜	1/4⅜	Bombay, Ltd.	19/—20/–	+–/6
181,185	Aug. 21	9½	9½	Bournemouth Sliding Scale ...	135—145	...
690,526	,,	7	7	Do. 7 p.c. max. ...	110—130	...
493,960	,,	6	6	Do. 6 p.c. Pref. ...	110—120	...
50,000	June 5	3	3	Do. 3 p.c. Deb. ...	70—75	...
362,025	,,	4	4	Do. 4 p.c. Deb. ...	93—98	...
335,000	,,	5	5	Do. 5 p.c. Deb. ...	105—110	–5
357,900	Aug. 21	7½	7½	Brighton, &c., 6 p.c. Con. ...	100—105	–9½
659,955	,,	6⅜	6⅜	Do. 5 p.c. Con. ...	100—105	...
205,500	,,	6	6	Do. 6 p.c. 'B' Pref. ...	95—105	...
855,000	Sept. 18	8	7	British Ord.	90—100	...
100,000	June 19	7	7	Do. 7 p.c. Pref.	136—141	...
350,000	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115	...
120,000	June 5	4	4	Do. 4 p.c. Red. Deb. ...	92—97	..
450,000	,,	5	5	Do. 5 p.c. Red. Deb. ...	100—105	...
450,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	89—94	...
100,000	22 May '33	6	4	Cape Town, Ltd.	¼—¾	...
100,000	6 Nov. '33	4½	4½	Do. 4½ p.c. Pref.	¼—¾	...
150,000	June 19	4½	4½	Do. 4½ p.c. Deb.	58—68	...
626,860	July 17	6	6	Cardiff Con. Ord.	95—105	...
237,860	June 5	5	5	Do. 5 p.c. Red. Deb. ...	97—102	...
98,936	Oct. 9	2/–	2/–	Colombo Ord.	1 7/16—1 9/16	...
24,510	,,	1/4⅜	1/4⅜	Do. 7 p.c. Pref.	20/6—22/6	...
739,453	Sept. 27	–/11.48	–/11.48	Colonial Gas Assn. Ltd. Ord. ...	15/—17/–	...
296,144	,,	1/3.30	1/3.30	Do. 8 p.c. Pref.	20/6—22/6	...
1,775,005	July 31	4	4	Commercial Ord.	48—58	–2
140,000	Aug. 21	4	4	Do. 4 p.c. Red. Pref. ...	88—93	...
620,000	June 5	3	3	Do. 3 p.c. Deb.	55—60	...
286,344	Aug. 21	5	5	Do. 5 p.c. Deb.	85—95	...
200,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Deb. ...	94— 99	...
807,560	July 31	7	7	Croydon sliding scale	100—110	...
644,590	,,	5	5	Do. max. div.	80—85	...
620,385	June 19	5	5	Do. 5 p.c. Deb.	90—100	...
208,660	Aug. 21	5	5	Dudley, Brierley Hill & Dist. Ord.	100—105	...
82,275	,,	5	5	Do. 5 p.c. Con. Pref. ...	92—102	...
79,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Deb. ...	94—99	...
239,000	July 31	5	5	East Hull Ord. 5 p.c.	86—91	...
187,215	Aug. 21	6	5¾	East Surrey Ord. 5 p.c. ...	98—103	...
176,211	June 5	5	5	Do. 5 p.c. Deb. ...	90—100	...
250,000	Nov. 13	8	4	Gas Consolidation Ord. 'B' ...	17/—19/–*	–1/6
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	16/—18/–*	–2/–
9,172,463	July 31	5⅜	5⅜	Gas Light & Coke Ord. ...	16/—17/–σ	...
2,600,000	,,	3½	3½	Do. 3½ p.c. max.	58—63	+1
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref. ...	76—81	+1
2,993,000	July 3	3¾	3¾	Do. 3¾ p.c. Red. Pref. ...	80—85	...
8,602,497	May 22	3	3	Do. 3 p.c. Con. Deb. ...	62—67	+2
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb. ...	97—102	...
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	96—101	+1
700,000	Sept. 4	3¼	3¼	Do. 3¼ p.c. Red. Ded. ...	85—90	...
270,466	July 31	6	6	Harrogate New Cons.	95—100	...
157,500	Mar. 20	‡1/–	‡1/–	Hong Kong and China Ord. ...	¼—¾	...
5,600,000	Oct. 23	12	4	Imperial Continental Cap. ...	75—85	–3
172,810	July 31	3½	3½	Do. 3½ p.c. Red. Deb. ...	85—95	...
63,480	June 19	3	3	Maidstone 3 p.c. Deb.	57—62	...
45,000	May 22	†10	†10	Malta & Mediterranean ...	95—105	...
				Metropolitan (of Melbourne) ...		
392,000	Oct. 2	5½	5½	5½ p.c. Red. Deb.	95—100	...
231,977	Aug. 21	5	5	M.S. Utility 'C' Cons.	70—80	–5
968,658	,,	4	4	Do. 4 p.c. Cons. Pref. ...	70—80	...
390,076	June 19	4	4	Do. 4 p.c. Deb. ...	70—80	...
148,955	June 19	5	5	M.S. Utility 5 p.c. Deb. ...	90—100	...
125,000	July 3	3½	3½	Do. 3½ p.c. Red. Bds. ...	92—95	...
675,000	Nov. 6	†3	†4	Montevideo, Ltd.	50—60	...
250,000	Aug. 21	7½	7½	North Middlesex 6 p.c. Con. ...	105—115	...
396,160	July 31	5	5	Northampton 5 p.c. max. ...	101—106	...
300,000	Nov. 6	†7	9	Oriental, Ltd.	118—128	...
468,537	June 5	7	8	Plymouth & Stonehouse 5 p.c.	102—112	–3
621,667	July 31	8½	8½	Portsmouth & Gosport Cons.	110—120	...
241,446	,,	5	5	Do. 5 p.c. max.	78—83	...
73,350	,,	5	5	Do. 5 p.c. Pref.	80—90	...
75,000	,,	4	4	Do. 4 p.c. Pref.	70—80	...
114,000	July 31	5	5	Preston 5 p.c. Pref.	90—100	...
247,966	June 19	4	4	Primitiva 4 p.c. Cons. Deb. ...	95—100	...
625,959	July 17	4	4	Do. 4 p.c. Red. Deb. ...	93—98	...
15,000	Sept. 4	6	6	San Paulo 6 p.c. Cum. Pref. ...	7½—8½	...
441,275	Oct. 9	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	16/—19/–	...
460,810	Oct. 2	–/10⅝	–/10⅝	,, ,, 4½ p.c. Cum. Pref. ...	16/6—18/6	+–/6
133,201	Aug. 21	5	8½	Shrewsbury 5 p.c. Ord. ...	107—117	..
9,000	June 5	‡4	‡4	South African Ord.	4—5	...
1,996,297	Aug. 21	1/2⅜	1/2⅜	South East'n Gas Cn. Ld. Ord.	15/6—17/6	...
1,000,000	,,	–/10⅜	–/10⅜	Do. 4½ p.c. Red. Cum. Pref.	17/—19/–	...
769,191	,,	4	4	Do. 4 p.c. Cum. Pref. ...	14/6—16/6	..
450,000	,,	4	4	Do. 4 p.c. Deb.	95—100	...
150,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
6,709,895	July 31	6	5	South Met. Ord.	63—68	–1½
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pref. ...	95—100	...
850,000	,,	4	4	Do. 4 p.c. Irred. Pref. ...	70—80	...
1,895,445	June 19	3	3	Do. 3 p.c. Deb.	60—65	...
1,000,000	July 17	5	5	Do. 5 p.c. Red. Deb. ...	97—102	...
600,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Deb. ...	92—97	...
1,543,795	July 31	6	6	South Suburban Ord. 5 p.c. ...	80—90	...
512,925	,,	5	5	Do. 5 p.c. Pref.	87—97	...
500,000	,,	4	4	Do. 4 p.c. Pref.	70—80	...
250,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Pref. ...	85—90	...
888,587	June 5	5	5	Do. 5 p.c. Deb.	90—100	...
250,000	,,	4	4	Do. 4 p.c. Deb.	75—85	...
200,000	July 31	3	3½	Do. 3½ p.c. Red. Deb. ...	85—90	...
427,859	Sept. 18	1/2⅜	9⅜	S. Western Gas & Water Ord.	14/—16/–	...
160,523	Oct. 9	–/10½	–/10½	Do. 4½ p.c. Red. Cum. Pref.	17/6—19/6	...
110,000	June 5	4	4	Do. 4 p.c. Red. Deb. ...	92—97	...
750,541	July 31	5½	5	Southampton Ord. 5 p.c. ...	75—85	...
148,836	June 5	4	4	Do. 4 p.c. Deb.	75—85	...
350,000	July 31	5½	5½	Swansea 5½ p.c. Red. Pref. ...	90—100	...
200,000	June 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—100	..
1,076,490	July 31	6½	6½	Tottenham and District Ord....	85—95	...
409,835	,,	5½	5½	Do. 5½ p.c. Pref.	95—105	...
62,235	,,	5	5	Do. 5 p.c. Pref.	85—95	...
453,380	June 19	4	4	Do. 4 p.c. Deb.	75—85	...
85,701	June 5	6	6	Tuscan 6 p.c. Red. Deb. ...	95—100	...
1,247,505	Oct. 23	6	4	U. Kingdom Gas Cor. Ord. ...	13/—16/–	...
1,085,952	May 8	4½	4½	Do. 4½ p.c. 1st Cum. Pref. ...	14/—17/–	...
772,709	,,	4	4	Do. 4 p.c. 1st Red. Cum. Pf.	15/—18/–	...
745,263	June 5	4½	4½	Do. 4½ p.c. 2nd Non-Cum. Pf.	13/6—15/6	...
1,093,656	Sept 18	3½	3½	Do. 3½ p.c. Red. Deb. ...	85—95	...
378,106	Mar. 6	7	7	Uxbridge, &c., 5 p.c.	90—100	...
133,010	,,	5	5	Do. 5 p.c. Pref.	95—105	...
1,371,138	July 31	7	6½	Wandsworth Consolidated ...	85—95	...
2,525,768	,,	4	4	Do. 4 p.c. Pref.	70—80	...
1,343,964	June 19	5	5	Do. 5 p.c. Deb.	90—100	...
383,745	,,	4	4	Do. 4 p.c. Deb.	75—85	...
400,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Deb. ...	92—97	...
558,342	July 31	6¼	6¾	Watford and St. Albans Ord. ...	90—100	...
200,000	,,	5	5	Do. 5 p.c. Pref.	80—90	...
200,000	,,	5½	5½	Do. 5½ p.c. Pref.	90—100	...
200,000	,,	4	4	Do. 4 p.c. Rd. Pf. (1973/8)	85—90	...
100,000	—	—	—	Do. 4 p.c. Red. Pf. (1959)	95—100	...
200,000	June 19	4	4	Do. 4 p.c. Red. Deb. ...	95—100	..
200,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	83—88	...

σ.—The quotation is per £1 of Stock. * Ex. Div. † Paid free of income-tax. ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Contd.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Nominal Quotations Nov. 17.	Rise or Fall on Week.
202,152	Sept. 4	5	5	Ascot Ord.	80—90	–12½
128,182	July 3	5	5	Do. 5 p.c. Pref.	90—95	–11
31,035	Aug. 21	–/4½	–/4½	Associated Utilities 4 p.c. Pref.	15/—17/–	...
100,000	June 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	–3
17,000	Aug. 21	8	8	Bognor Orig. Ord. 'A' ...	105—115	–32
62,210	,,	8	8	Do. New Add. 'A' ...	105—115	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	100—110	...
37,440	July 31	10	10	Cam. Univ. & Town 10 p.c. max.	110—120	...
125,970	,,	7	7	Do. 7 p.c. max.	90—100	...
39,025	,,	5	5	Do. 5 p.c. max.	80—90	...
96,410	July 17	4½	4½	Cardiff 4½ p.c. Pref.	92—97	...
55,520	July 31	6	6	Colchester 6 p.c. Pref.	100—110	–10½
90,550	Sept. 18	5	5	Do. 5 p.c. Deb.	100—105	...
150,000	July 31	4	4	Croydon 4 p.c. Pref.	70—75	–14
130,000	June 19	4	4	Do. 4 p.c. Deb.	75—80	–15
65,000	Aug. 21	7½	7½	Eastbourne 'A' 5 p.c.	105—115	–15
198,000	,,	6	6	Do. 'B' 3½ p.c.	90—100	–13
112,312	,,	5	5	Do. 5 p.c. Pref.	90—95	–10
130,000	June 19	5	5	Do. 5 p.c. Deb.	95—105	–7½
130,500	Aug. 10	7½	7½	Exeter New Ord. (£10) ...	10—12	–3½
24,000	Aug. 21	8½	8½	Gt. Yarmouth 8½ p.c. max. (£30)	20—25	–4
59,400	,,	7½	7½	Do. 7½ p.c. max. (£30) ...	17—22	–9
51,160	June 5	5½	5½	Do. 5½ p.c. Deb.	100—110	–12½
152,600	Sept. 4	9	8	Guildford Cons.	110—120	–35
54,055	,,	5	5	Do. 5 p.c. Pref.	90—95	–10
68,250	June 5	5	5	Do. 5 p.c. Deb.	97—102	–6
156,600	Aug. 21	7	7	Hampton Court Cons. ...	100—110	...
86,046	June 19	‡4½	‡5	Holyh'd&N.W.G.&W.Cpn.Ord.	13/6—15/6	...
80,000	Aug. 21	4	4	Lea Bridge 4 p.c. Pref.	65—75	–10½
60,000	,,	6	6	Do. 6 p.c. Pref.	105—115	–5½
94,876	June 5	4	4	Do. 4 p.c. Deb.	75—80	–12
73,620	Sept. 18	8½	8½	Luton Cons. 'A'	105—115	–45
107,960	Sept. 18	5½	4	Mid Kent Ord. (£10)	8—9	...
230,940	July 31	10	10	Oxford & District Ord. ...	130—140	–15
47,112	,,	5	5	Do. 5 p.c. Pref.	85—95	–10
50,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	100—105	–6
126,193	Oct. 30	7½	7½	Peterborough Ord.	100—110	–31½
64,990	Sept. 18	7½	7	Redditch Ord.	100—110	–10
166,850	July 31	8	8	Romford Ord.	110—120	...
40,000	,,	4	4	Do. 4 p.c. Pref.	85—90	–10
44,000	Sept. 18	5	5	Do. 5 p.c. Deb.	95—100	–10
25,570	July 31	5½	5½	Rugby 5½ p.c. Pref.	95—105	–18½
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	100—105	–3
42,750	June 5	5½	5½	Do. 5½ p.c. Deb.	105—110	–8
110,950	Aug. 21	8	8	Ryde Ord.	100—110	...
270,086	Sept. 4	7	7	Slough Ord.	100—110	–20
21,000	June 5	5	5	Do. 5 p.c. Deb.	95—100	–8
28,872	Nov. 6	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	14/—16/–	–2/–
28,866	Sept. 18	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	14/—16/–	–2/6
117,228	Aug. 21	7	5	Swindon Cons.	70—80	–2½
60,425	June 5	5	5	Do. 5 p.c. Deb.	95—100	–8
64,380	June 19	5	5	Torquay & Paignton 5 p.c. Pref.	85—90	–17
120,000	Aug. 21	8	5	Wakefield Ord.	85—95	–13½
81,650	,,	5	5	Do. 5 p.c. max.	75—80	–6
82,000	July 31	6	6	Weymouth Ord.	80—90	–18½
273,626	Aug. 21	7	7	Wolverhampton Cons. Ord. ...	95—105	–10
98,384	,,	6	6	Do. 6 p.c. Pref.	105—115	–5½
160,000	June 19	5½	5½	Do. 5½ p.c. Red. Deb. ...	100—105	–2
106,490	Aug. 21	5½	5½	Wrexham Ord.	70—80	–16½
90,000	June 19	5	5	York 5 p.c. Red. Deb.	97—102	–5
133,640	July 31	6½	6	Yorktown (Cam.) 5 p.c. Cons.	80—90	–29½
120,000	,,	5	5	Do. 5 p.c. Pref.	85—95	–12½
35,000	June 19	5½	5½	Do. 5½ p.c. Deb.	105—110	–5

BRISTOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
347,756	July 31	6	5	Bath Cons.	107—112	...
1,667,250	,,	5	5	Bristol, 5 p.c. max.	97—100	...
120,420	June 5	4	4	Do. 1st 4 p.c. Deb. ...	89—93	...
415,250	,,	4	4	Do. 2nd 4 p.c. Deb. ...	89—93	...
328,790	,,	5	5	Do. 5 p.c. Deb.	110—113	...
274,000	July 31	5	5	Newport (Mon.) 5 p.c. max. ...	90—95	...
13,200	Sept. 4	8½	7	Pontyp'l Gas & W. 10 p.c. 'A'	12—13	...
13,600	,,	6	5	Do. 7 p.c. 'B'	10½—11	...
40,000	,,	6	5	Do. 7 p.c. 'C'	10½—11	...
140,778	July 31	5	5	Weston-super-Mare Cons. ...	93—98	...
64,338	June 19	4	4	Do. 4 p.c. Deb.	90—95	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	140—150	...

LIVERPOOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
157,150	July 31	6½	5	Chester 5 p.c. Ord.	100—103	...
92,500	June 5	4	4	Do. 4 p.c. Pref.	75—85	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	86—89	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	96—100	...
2,167,410	Aug. 21	6	6	Liverpool 5 p.c. Ord.	99—101	...
245,500	June 19	5	5	Do. 5 p.c. Red Pref. ...	90—95	...
306,083	July 17	4	4	Do. 4 p.c. Deb.	99—101	...
106,280	July 31	10	10	Preston 'A' 10 p.c.	174—184	...
188,219	,,	7	7	Do. 'B' 7 p.c.	126—136	...

NEWCASTLE EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
122,577	Aug. 21	8	8	Blyth 5 p.c. Ord.	146½—148½	...
732,000	Aug. 21	3	4	Hartlepool G. & W. Cn. & New	74½—76½	...
2,061,315	July 31	5½	5	Newcastle & Gateshead Con.	17/9—18/3a	...
682,856	,,	4	4	Do. 4 p.c. Pref.	75—85	...
776,706	June 5	3½	3½	Do. 3½ p.c. Deb.	84—89	...
277,285	April 24	5	5	Do. 5 p.c. Deb. '43 ...	100—105	...
332,351	Aug. 21	6	6	Sunderland 6 p.c. max. ...	110—120	...

NOTTINGHAM EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
542,270	Aug. 10	9	6	Derby Con.	105—115	–5
55,000	June 19	4	4	Do. 4 p.c. Deb.	100—105	...
20,000	June 19	5	5	Long Eaton 5 p.c. Pref. ...	9—11	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	100—105	...

SHEFFIELD EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Nov. 17.	Rise or Fall on Week.
10,000	Aug. 21	10	10	Great Grimsby 'A' Ord. ...	180—190	...
6,500	,,	10	10	Do. 'B' Ord. ...	180—190	...
79,000	,,	10	10	Do. 'C' Ord. ...	175—185	...
1,806,339	Feb. 20	6½	6½	Sheffield Cons.	120—123	...
95,000	July 3	4	4	Do. 4 p.c. Deb.	99—101	...

a The quotation is per £1 of Stock.
* Ex. div. ‡ For year.

PUBLISHERS' NOTICE

TERMS OF SUBSCRIPTION

United Kingdom & Ireland : Advance Rate, 35/- per annum; 18/- per half year. Credit Rate : 40/- per annum; 21/- per half year.
Dominions & Colonies & United States : 35/- per annum, in advance. Other countries in the Postal Union, 40/- per annum, in advance.

A copy of the "G.J." Calendar and Directory is presented to continuous subscribers.

CLASSIFIED ADVERTISEMENTS

Situations Wanted, 6d. a line (minimum 3/-, about 36 words). Situations Vacant, Plant for Sale and Wanted, Contracts, Public Notices, Educational, &c., 9d. a line (minimum 4/6). Financial Notices, 1/- per line. Box Number, 6d. extra.

WALTER KING, LTD.,

Telephone: Central 2236-7-8. 11, BOLT COURT, FLEET STREET, LONDON, E.C.4. Telegrams: Gasking, Fleet, London.

War Time Address: 51, High Street, Esher, Surrey. *Telephone: Esher 1142*